The 1986 Roe Herring Charter Vessel Monitoring and Sampling Program

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BY

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ABSTRACT

Armstrong, R.W., 1986. The 1986 roe herring charter vessel monitoring and sampling program. Can. Ind. Rep. Fish. Aquat. Sci. 172: 110 p.

Eleven charter vessels made 372 sample sets on the British Columbia coast in order for fishery managers to assess the stock abundance, recruitment and state of sexual maturity of the Pacific herring (Clupea harengus pallasi). These data were used to determine the location, timing and estimated duration of the 1986 commercial roe herring fishery openings.

In addition, laboratory samples were retained after each sample set for Fisheries Research Branch scientists as part of the data base for the computer modelling system used to estimate the escapement and predict the available surplus for the 1986/1987 Pacific herring fishery. Field data, including hydroacoustic stock estimates and onboard field analysis data are contained in this report.

Key words: Pacific herring (Clupea harengus pallasi), charter vessels, stock abundance, sexual maturity, roe yield, standard length.

RÉSUMÉ

Armstrong, R.W., 1986. The 1986 roe herring charter vessel monitoring and sampling program. Can. Ind. Rep. Fish. Aquat. Sci. 172: 110 p.

Onze bateaux affrétés ont recueilli 372 séries d'échantillons sur la côte de la Colombie-Britiannique pour permettre aux gestionnaires des pêches d'évaluer l'importance des stocks, le recrutement et la maturité sexuelle du hareng du Pacifique (Clupea harengus pallasi). Ces données ont servi à déterminer l'emplacement, la date et la durée approximative des périodes d'ouverture de la pêche commerciale du hareng plein.

En outre, après le prélèvement de chaque série d'échantillons, on a conservé, à l'intention des scientifiques de la Direction de la recherche sur les pêches, des échantillons pour analyse en laboratoire qui seront intégrés à la base de données pour le système de modélisation informatisé utilisé pour évaluer le nombre de rescapés et prédire les surplus disponibles pour la pêches du hareng du Pacifique en 1986-1987. Le présent rapport renferme des données recueillies sur le terrain, notamment des estimations hydroacoustique des stocks, et des données d'analyses faites à bord.

Mots-clés: hareng du Pacifique (Clupea harengus pallasi), bateaux affrétés, importance des stocks, maturité sexuelle, production d'oeufs, longueur standard.

INTRODUCTION

In 1986, 11 herring seiners were chartered for the roe herring test fishing program to provide pre-fishery herring stock information for fishery managers and research scientists.

The charter program objectives were as follows:

1. In-season management

   a) to estimate the overall herring biomass in each fishing location and to identify a fishable stock to meet the Fixed Quota requirement,

   b) to determine roe yields,

   c) to determine if the available herring size (length and weight) was suitable for a herring fishery,

   d) to determine roe quality, ie. incidence of abnormal roe,

   e) to provide updated information on the rate of maturity based on roe yield, abundance and behavior, allowing the fishing fleet to remain in protected anchorages i.e. in some cases up to 48 hours notice was given to the gillnet fleet.

   f) to ensure "on the grounds" input from Industry via the charter vessel masters,

   g) to use charter vessels as training platforms for Department of Fisheries and Oceans (DFO) field staff.

2. Research

   a) to obtain biological samples for the Fisheries Research Branch (FRB) from as many herring spawning stocks as possible. The resulting information is used to forecast the stock strength and potential catch for the following year.

In order to fulfill the above objectives, it is mandatory that the fishing master be an experienced and successful herring fisherman who is ready and able to pass on his experience to the DFO staff, and who is respected by seine and gillnet fishermen participating in the commercial fishery.

HISTORICAL REVIEW OF THE ROE HERRING CHARTER PROGRAM

Successful management of roe herring fisheries depends on the manager getting timely and accurate information on stock movement, abundance and sexual maturity.

Before 1980, seine vessels were only chartered for the period preceeding fishery openings and could participate in the commercial fishery. This meant that just when the fishery managers most urgently needed the information on roe

yield and abundance, they lost one of their key sources of data. This may have resulted in lost opportunities and lost revenue to Industry.

These vessels were not chartered for the entire fishing season strictly because the cost of buying an experienced and successful fisherman out of the roe herring fishery was prohibitive, especially during the late 1970 boom years. An estimated cost of chartering 11 seine vessels was in excess of $1,000,000. The dramatic increase in value of roe herring, combined with the Industry requirement of a minimum roe yield of 10%, increased the need for timely and accurate information on stock movement, abundance and sexual maturity.

During the "Bonanza Year" of 1979, million dollar seine sets were made and cash buyers were paying up to $5,000/ton on the fishing grounds. This activity resulted in additional pressure on the resource and fishery managers, thus further confirming that test vessels were required throughout the roe fishery season.

The present chartering system is the result of consultation with fisheries staff and representatives from the Industry. It was decided that Industry would get involved in providing in-season management information through the charter vessel masters. Seiners with experienced skippers would be chartered to conduct test fishing throughout the fishing season under authority of Section 4 of the Fisheries Act and Section 3 of the Fisheries Development Act. The charter seiners would carry out the test fishing operation and would be given permission to catch a specified quantity of roe herring in tons/day for the 26-day duration of the charter. As part of the Charter Agreement, the charter seiner would not participate in the roe herring fishery during the year of the charter.

In this way, the charter program was paid out of the resource, Industry was involved during the fishing season in developing the fisheries through the charter vessel masters, and a number of seiners were bought out of the open fishery thereby reducing fleet size.

This report summarizes the seine set data, roe yield information and length frequency distribution data collected from the 11 charter seiners. In order to simplify data tabulation, interpretation and comparison with previous years, all tonnage is given in short tons (907.18 kg), the distances are shown in nautical miles (1.85 km) and herring length is given in centimeters. The present report is one of a series of publications by the DFO aimed at providing the annual summary of roe herring monitoring and sampling program.

METHODS AND MATERIALS

In 1986, 11 herring seine vessels were chartered for the roe herring fishery on the B.C. coast. Because the West Coast Vancouver Island (WCVI) area was closed to herring fishing in 1985, it was felt at the time that two charter vessels instead of three could provide the necessary sampling effort in the area. In fact, two vessels were not enough in 1985 and it was proposed there should be three vessels on the West Coast Vancouver Island in 1986. Due to the fact that the Strait of Georgia was also closed in 1986 for roe herring fishing, a vessel was moved from the Strait of Georgia to the West Coast of Vancouver Island. It was felt that 2.5 vessels (see below for explanation) could provide the necessary sampling requirement in the Strait of Georgia if there was no fishery. In addition, the DFO drum seiner "Walker Rock" was used to supplement

the sampling program in the Strait of Georgia during the peak sampling period. As in previous years, the charter vessels were used to assess the herring stocks in each area by echo sounding for biomass estimates and by seining for biological samples to determine recruitment and roe yield. The normal procedure was to cover the fishing grounds hydroacoustically and obtain seine samples from a cross-section of the herring schools in each location. The North Coast charter vessel was additionally required to tag up to 10,000 herring with anchor spaghetti tags to provide further information on stock separation.

Invitations to tender were mailed to all licenced herring seiners, and 11 charter vessels were selected (Table 1). The selection was based on a combination of low bids (tons of roe herring per day) and a point rating system which takes into account the experience of the vessel master and the condition of the vessel and equipment. All vessels were chartered for a minimum of 26 days with provisions made for extensions of up to 5 days, if required. Bids from the successful vessels ranged between 2.16 tons/day and 3.46 tons/day for a total tonnage requirement of 798.85. The actual payment was 871.05 tons including extensions (Tables 1 and 2). Seven charter vessels were given extensions during 1986 because of the record late spawning; no extensions exceeded five days. The actual tonnage caught for payment was 1,050.20 tons. This represents an average excess catch of 16 tons per vessel or 179.145 tons. All herring caught in excess of the tendered amount were sold at the same rate paid to the respective charter vessel and the monies forwarded to the Receiver General of Canada. The total value of the excess catch was $371,946.40; the average rate paid per ton was $2,076.20/ton.

This was the lowest overall tonnage requirement since 1980 (Table 3). The obvious reason was the comparatively low roe herring quota. Although the tonnage requirement for 1986 was the lowest since 1980, the bid and seine quota ratio was the highest at 2.32 X the average seine quota in 1986 compared with 1.52X in 1984 (Table 3). The bid and seine quota ratio was dropping from 1982-1984 but increased in 1985 and 1986. There are several possible reasons for this trend but the dominant reason is likely that the cost to the charter vessel (i.e. fuel, provisions, net maintenance, etc) is fixed. Therefore, when the quota is low, as in 1985 and 1986, the prospective charter fishermen would rather take a chance in the open fishery with the possibility of a large catch at relatively low cost (charter fishermen, pers. comm.).

The charter timing was set to ensure that the charter vessel was available prior to and during the major spawnings in each area (Table 2). The 11 vessels were assigned to the three herring management areas as well as the closed Strait of Georgia and West Coast Vancouver Island areas (Fig. 1) as follows:

Licence Area 1 - Queen Charlotte Islands - 2 vessels
Licence Area 2 - Prince Rupert - 1.5 vessels[a]
Licence Area 3 - Central Coast - 2 vessels
Closed Area - Strait of Georgia - 2.5 vessels[a]
Closed Area - West Coast Vancouver Island - 3 vessels

[a] One charter vessel was used for both the Prince Rupert and Strait of Georgia areas (13 days duration in each area).

Table 1. Roe herring charter payment summary, B.C., 1986.

Vessel	Charter bid (tons) Daily Rate	Charter (26 days)	Total Payment (tons)	Total Catch (tons)	Excess (tons)
Christav	2.90	75.4	83.17	83.17	0
Venturous	2.60	67.6	67.60	76.56	8.96
Karenora II	3.46	89.96	107.26	127.90	20.64
Fisher Lassie II	2.665	69.29	82.615	170.52[a]	29.405
Marine Star	2.25	58.5	58.5		
Westview No. I	3.00	78.0	78.0	94.168	16.168
Semidi	2.95	76.7	76.7	84.5195	7.8195
Argent Fisher	3.15	81.9	97.65	189.5875	91.9375[b]
Pacific Harvester	2.16	56.16	66.96	71.1405	4.1805
Elling K	2.69	69.94	73.5715	152.631[a]	0.0345
C. Venture No. I	2.90	75.4	79.025		
TOTAL	30.73	798.85	871.0515	1050.1965	179.145
Mean	(2.79)				

[a] The charter payment catch was combined.

[b] Approximately 90% of the excess shown as Argent Fisher excess was caught by the Karenora II; the Karenora II did not have sufficient packing capacity for the excess and Argent Fisher packers had to be used.

Table 2. Roe herring charter vessels by location and time period, B.C., 1986.

Vessel	Fishing Master	Location	Charter Timing	Charter Duration (days)
Christav	G. Stava	QCI	Mar 4-Apr 1	28.68[a]
Venturous	E. Jensen	QCI[b]	Mar 1-26	26
Karenora II	D. Smith	Pr. Rupert	Mar 13-Apr 12	31[a]
Fisher Lassie II	V. Wilson	Central Coast	Mar 1-Apr 6[c]	31[a]
Marine Star	B. Wilson	Central Coast	Mar 6-Apr 1	26
Westview No. I	M. Aleksich	SG/JS[d]	Feb 20-Mar 17	26
Semidi	T. Pallant	SG/JS	Mar 1-Mar 26	26
Argent Fisher[e]	J. Malatestinic	SG/JS Pr.Rupert	Feb 20-Mar 4 Mar 20-Apr 6	31[a]
Pacific Harvester	A. Salo	WCVI[f]	Feb 20-Mar 22	31[a]
Elling K.	F. Leland	WCVI	Feb 20-Mar 19	27.35[a]
C. Venture No. I	M. Carr	WCVI	Feb 20-Mar 19	27.25[a]

[a] Includes the extentions above the 26 day tendered duration.

[b] Queen Charlotte Islands.

[c] The "Fisher Lassie II" took several days off during the charter to extend the duration.

[d] Strait of Georgia/Johnstone Strait.

[e] The "Argent Fisher" charter split between Strait of Georgia/Johnstone Strait and Prince Rupert.

[f] West Coast Vancouver Island.

Table 3. Comparison between the seine quota and charter payment requirement, 1980-1986 (values expressed in short tons, except where indicated).

Year	Roe Herring Quota	Seine Quota (Ave) [No. vessels]	Charter Bid (Ave) [No. vessels]	Payment	Catch	Bid & Seine Quota Comparison Ratio[a]
1980	35,000	19,250 (79) [244]	1,086 (136) [8][b]	1,116	1,187	1.72X
1981*	30,000	16,500 (69) [240]	1,761 (147) [12][c]	1,761	2,107	2.13X
1982	35,000	19,250 (81) [239]	1,941 (149)[d] [13]	1,989	2,138	1.84X
1983	30,900	16,995 (71) [240]	1,490 (124) [12+2][e,f]	1,555/ 1,679[f]	1,886	1.75X
1984	34,502	18,976 (79) [240]	1,445 (120) [12][e]	1,511	1,628	1.52X
1985	20,723	11,398 (47) [241]	1,026 (93) [11][e]	1,033	1,212	1.98X
1986	13,666	7,516 (31) [241]	799 (72) [11][e]	871	1,050	2.32X

[a] Ratio of the average charter bid and average seine quota by year.

[b] 1980 - 20-day charters except for 27-day charter in the Central Coast.

[c] 1981 & 1982 - 26 days South Coast
- 27 days North Coast.

[d] Includes special research charter in Barkley Sound.

[e] 1983-1986 - 26 days for all charters.

[f] Includes special fall 1982 charter in the North Coast.

*1981 - 1st year of area licencing.

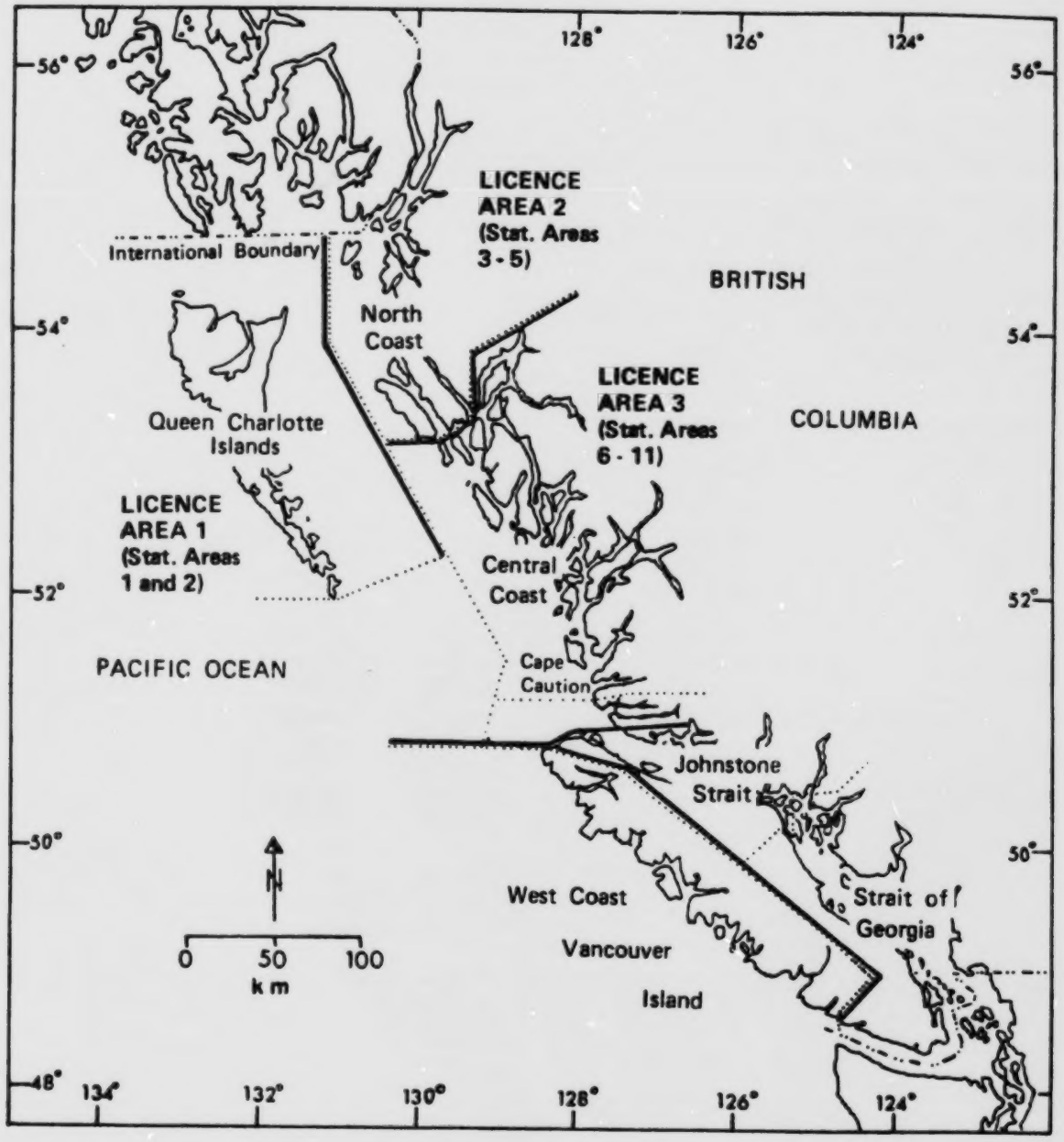

Fig. 1. Herring management divisions (dotted lines) and 1986 roe herring Licence Areas 1 - 3 (solid lines).

The charter vessels were assigned to specific sampling locations within each management area and were given general directions by the fishery manager on where samples were required in each district. Each set location was recorded by Statistical Area (Fig. 2) and herring section (Figs. 3 and 4, Table 4). The onboard direction on sampling procedure was given by the DFO fishery officer, technician or biologist assigned to the vessel.

Specific sampling instructions, similar to those used in previous years, were placed onboard each vessel (Appendix Table 1).

Onboard Sampling Procedure

Seine sample sets were made on all large bodies of herring, and samples of approximately 90 kg (200 lb) were brought aboard from the set using a small meshed dipnet or brailer. A Wheelhouse and Sample Log sheet, which doubles as a length measurement data sheet, was completed after every set (Appendix Figs. 1a & 1b). Another random sample of approximately 18 kg (40 lb) was taken from the same set for further laboratory analysis at FRB. Samples were also retained for special FRB research studies in selected locations along the coast.

The onboard data sheets and sampling procedures are described below.

1. Onboard data records

i) Daily log

The daily log covers all activities of the charter vessel while assessing the herring stocks. This includes a summary of discussions with the vessel master on fish movement and behaviour patterns. The daily logs from the previous year are also placed aboard the charter vessels as a reference for past fish behavior and distribution patterns in a particular location.

ii) Wheelhouse and Sample Log

This data sheet is completed after every set, including water hauls, and provides a record of the seine set including biomass estimates and roe yield information (Appendix Figs. 1a and 1b). Information from this data sheet is reported to the District Management Coordinator by radio telephone. The Wheelhouse and Sample Log was revised to include more information in 1985.

iii) Onboard sampling

a) Herring measurement

Standard length measurements (Appendix Fig. 2) obtained from a random sample of 100 herring are recorded directly on a Wheelhouse and Sample Log (Appendix Figs. 1a and 1b). The herring below a "cutoff" length (predetermined from past year's age/length data) are judged to be recruiting herring (Appendix Table 2). These small herring are less desireable due to their smaller gonads and therefore, lower roe yield.

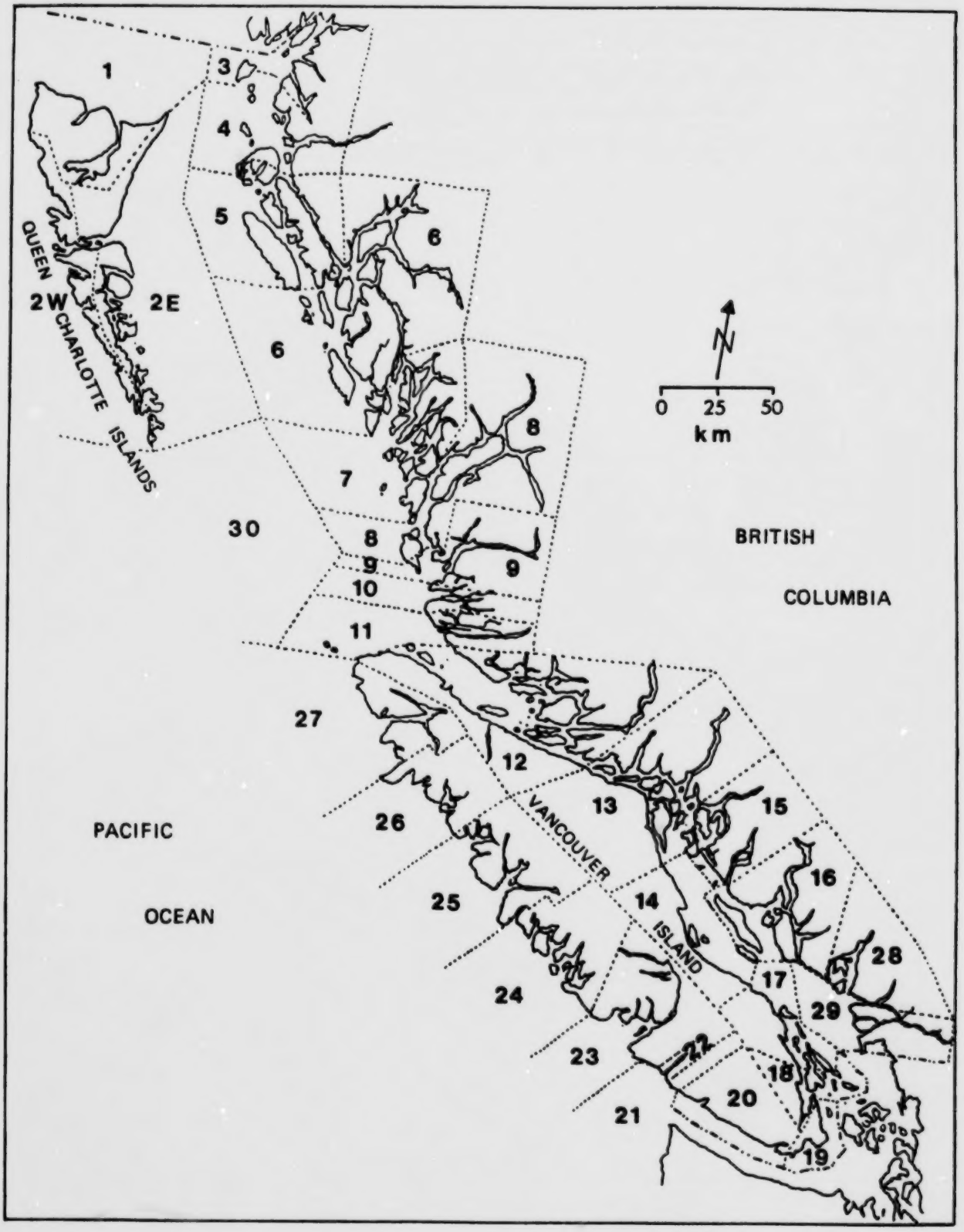

Fig. 2. Statistical Areas in British Columbia.

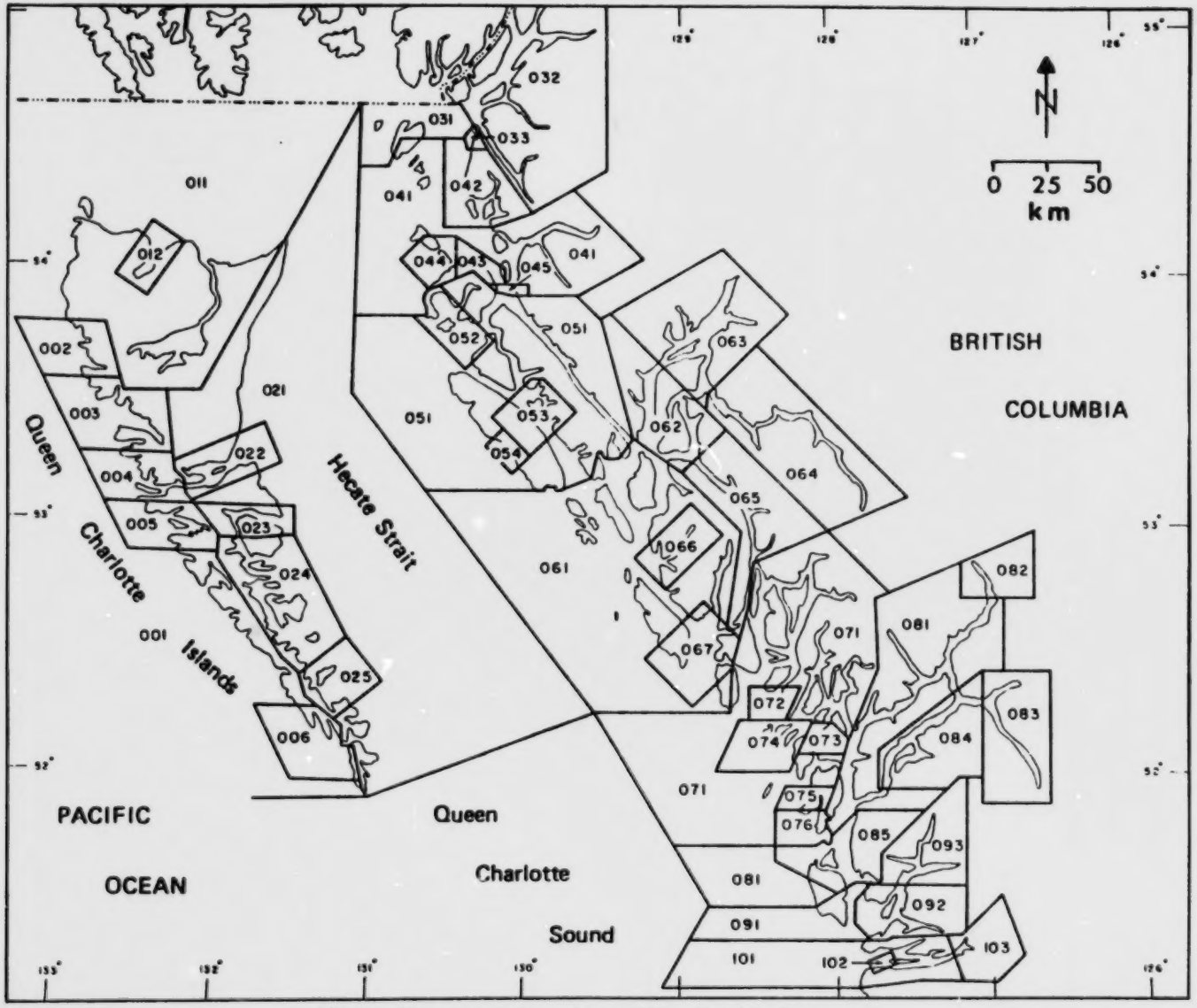

Fig. 3. Herring sections in northern British Columbia.

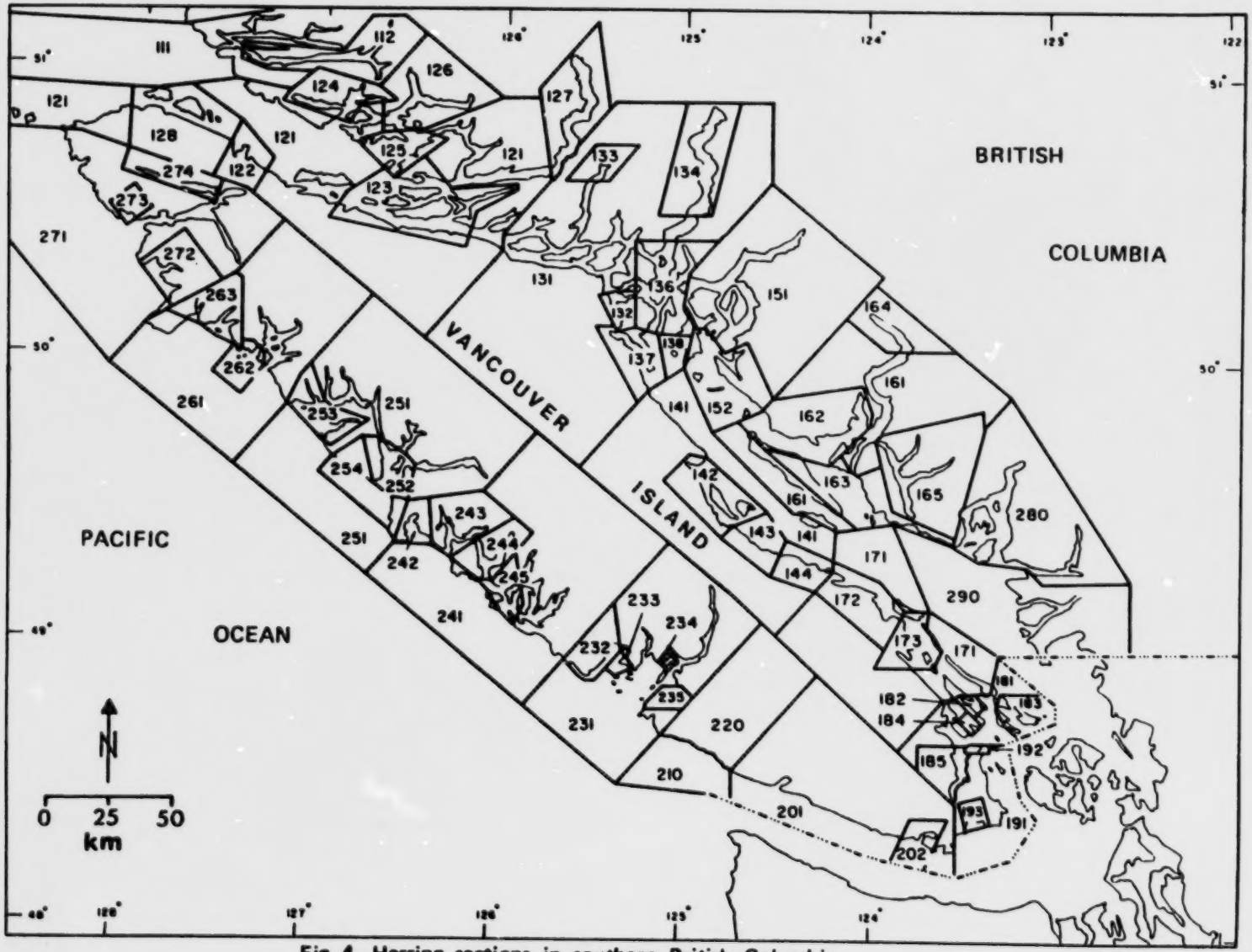

Fig. 4. Herring sections in southern British Columbia.

Table 4. Herring divisions and sections in British Columbia.

DIVISION		SECTION	DIVISION		SECTION
Name	Code	Name	Name	Code	Name
Queen Charlotte Islands	011	Other Area 1	Central (cont'd)	091	Other Area 9
	012	Naden Harbour		092	Rivers Inlet Mouth
	006	Louscoone Inlet		093	Rivers Inlet Head
	001	Other Area 2W		101	Other Area 10
	002	Port Louis		102	Takush Harbour
	003	Rennell Sound		103	Smith Inlet Head
	004	Cartwright Sound		061	Other Area 6
	005	Englefield Bay		062	Promise Island
	023	Cumshewa Inlet		063	Kitimat Arm
	025	Skincuttle Inlet		064	Gardner Canal
	021	Other Area 2E		065	Princess Royal Channel
	022	Skidegate Inlet		066	Surf Inlet
	024	Laskeek Bay		071	Other Area 7
				081	Other Area 8
North Coast	033	Port Simpson		082	Kimsquit Bay
	042	Big Bay		083	Bentinck Arms
	043	Malacca Passage			
	044	Edye Passage	Johnstone Strait	123	Cracroft Island
	045	Gibson Group		124	Watson Island
	052	Kitkatla Channel		125	Eden Island
	031	Other Area 3		126	Kingcome Inlet
	032	Portland Inlet		127	Knight Inlet
	041	Other Area 4		111	Other Area 11
	051	Other Area 5		112	Nugent Sound
	053	Anger Island		121	Other Area 12
	054	Foul Bay		122	Beaver Harbour
				128	Goletas Channel
Central	067	Kitasu Bay		131	Other Area 13 Strait
	072	Powell Anchorage		132	Kanish Bay
	073	Gunboat Passage		133	Loughborough Inlet
	074	Thompson Bay		134	Bute Inlet
	075	McNaughton Group			
	076	Kildidt Sound			
	085	Kwakshua Channel			
	084	Burke Channel			

Table 4 (cont'd). Herring divisions and sections in British Columbia.

DIVISION		SECTION	DIVISION		SECTION
Name	Code	Name	Name	Code	Name
Strait of Georgia	152	Lund	West Coast of Vancouver Island	232	Macoah Pass
	162	Stillwater		233	Mayne Bay
	142	Baynes Sound		210	Area 21
	143	Qualicum		218	Offshore Area 21
	144	French Creek		220	Nitinat Lake
	172	Nanoose Bay		231	Other Area 23
	173	Yellow Point		234	Useless Inlet
	182	Ganges Harbour		235	Bamfield Inlet
	183	Plumper Sound		238	Offshore Area 23
	290	Boundary Bay		244	Whitepine Cove
	136	Other Area 13 Gulf		245	Meares Island
	137	Heriot Bay		241	Other Area 24
	138	Marina Island		242	Hesquiat Harbour
	141	Other Area 14		243	Sydney Inlet
	151	Other Area 15		248	Offshore Area 24
	161	Other Area 16		252	West Nootka
	163	Pender Harbour		254	Bajo Point
	164	Queens Reach		253	Nuchatlitz Inlet
	165	Sechelt Inlet		272	Brooks Bay
	171	Other Area 17		273	Winter Harbour
	181	Other Area 18		251	Other Area 25
	184	Fulford Harbour		261	Other Area 26
	185	Saanich Inlet		262	Clanninick Cove
	191	Other Area 19		263	Checleset Bay
	192	Tsehum Harbour		271	Other Area 27
	193	Victoria Harbour		274	Holberg Inlet
	201	Other Area 20			
	202	Sooke Inlet			
	280	Howe Sound			

In addition, changes in the percentage of herring below the "cutoff" length could indicate a change in stock composition and may be important in setting fishery boundaries.

2. Roe yield

During the 1986 roe herring fishery, two methods of determining roe yield were used:

a) Volumetric method - this is the commonly used method which consists of filling a standard 18 l (4 imp. gal.) bucket level to the top with herring, stripping the ripe female roe into a calibrated volumetric cylinder and recording the percentage off the scale (Appendix Table 3).

b) Weight method - this was used in the Strait of Georgia - the actual weight of the herring sample and roe is used to calculate the roe yield (Appendix Table 4).

In this report, the roe yield information tables give volume and adjusted volume or weight and adjusted weight depending on the area sampled. The adjusted roe yield values assume a 50:50 male/female sex ratio and the formula used for this adjustment is shown in Appendix Table 5. Generally, the herring population will have a 50:50 male/female sex ratio. However, this may not be true in all cases. For example, if the stocks are in a declining phase, two-year-old males may recruit to the spawning stock, rendering males the dominant sex; males breaking off from the main school just prior to spawning could be another factor affecting the overall sex ratio. Therefore, a 50:50 male/female sex ratio should be assumed with caution.

3. Laboratory samples

After each set, a biological sample containing a minimum of 100 herring was placed in a plastic bucket, sealed and either frozen or iced down for delivery to FRB for further analysis. During 1986, additional FRB samples were retained from preselected locations along the coast for determining herring fecundity and the Gonosomatic Index (GSI) used in predicting the rate of herring maturation.

RESULTS

During the 1986 roe herring charter program, the 11 charter seiners made 372 seine sample sets for an average of 34 sets per vessel (Table 5). A total of 767 roe tests were carried out onboard the charter vessels and 272 samples were retained for the FRB laboratory (Table 5). Approximately 100 samples were also retained for special research studies, i.e. Gonosomatic Index and fecundity studies. In 1986, the roe yields for both the seine and gillnet fisheries were generally very good, ranging between 11-14% for seines and 12-13% for gillnets (Table 6). Hydroacoustic biomass estimates, roe yield information, sea surface water temperatures and length frequency distributions of herring are shown for each seine sample set in Tables 7-32. Also included are results from samples obtained from spawn-on-kelp fishing operations, commercial fishery samples and

Table 5. Number of seine sets, roe tests and biological samples by charter vessel, B.C., 1986.

Statistical Area	Charter Vessel	No. of Sets	No. of Roe Tests	No. of Biological Samples Retained[a]
QCI (2E)	Christav	37	77	27
QCI (2W&2E)	Venturous	39	55	16
Prince Rupert (305)	Karenora II	30	74	21
Prince Rupert/split (3-5)	Argent Fisher	27	72	21
Central Coast (6-10)	Fishery Lassie II	39	85	34
Central Coast (6-10)	Marine Star	28	68	22
Strait of Georgia (14-18)	Westview No. I	46	99	38
Strait of Georgia (12-15, 17 & 18)	Simidi	26	58	21
St. of Georgia/split (14,17&18)	Argent Fisher	22	32	20
WCVI (23 & 24)	Pacific Harvester	39	107	32
WCVI (23-27)	Elling K	20	23	11
WCVI (25-27)	C. Venture	19	17	9
	Total	372	767	272
	Average/Vessel	34	70	25
	Range/Vessel	19-49	17-107	9-41

[a] In addition to the biological samples, 100 samples were retained for special research studies.

Table 6. Roe herring openings, B.C., 1986.

Licence Area	Location (sub-area)	Date/Time (duration)	Quota (tons)	Hailed[a] Catch (tons)	Est. Roe Yield %
		SEINES			
1. Queen Charlotte Islands	Skincuttle Inlet (2-15)	March 23/0947-1336 (3 h 59 min) March 23/1846-1909 (33 min)	3,325	3,143	13+
2. Prince Rupert	Kitkatla Inlet (5-4, 5-5)	April 2/1005-1407 (4 h 2 min) April 4/0917-1033 (1 h 16 min)	2,500	3,606	13-14
3. Central Coast	E. Higgins Pass (7-3)	March 29/0916-1348 (4 h 32 min)	1,691	2,112	11-12
		Total Seine	7,156	8,861	
		GILLNETS			
1. Queen Charlotte Islands	L. Juan Perez Sd. (2-12, 2-13))	April 7/1300-2115 (8 h 15 min)	825	924	13
2. Prince Rupert	Pearl Hr-Big Bay (4-5,4-6,4-7,4-8, 4-14 and 4-9 north of Lima Pt. to Avery Is.)	April 12/0830-2000 (11 h 30 min) April 13/0930-1015 (45 min)	4,500	5,000	13
3. Central Coast	Kitasu Bay (6-18) Powell Anch. Area (7-9) Spiller Chan (7-13, 14) Lower Thompson Bay (7-19)	April 5/0800-1630 (8 h 30 min)	825	1,095	12+
		Total Gillnet	6,150	7,019	

[a] Estimated catch made during the respective fisheries.

Georgia Strait seine samples caught by the DFO drum seiner "Walker Rock". Altogether 8,969 herring were tagged with spaghetti anchor tags ("Floy") in the North Coast license area (1,994 and 6,975 in Statisical Areas 3 and 5, respectively).

The sampling frequency and distribution among areas in 1986 were generally acceptable with the extension period except for the northern areas where some later spawnings were not sampled.

For 1987, more split charters similar to the 1985 and 1986 "Argent Fisher" Strait of Georgia/Prince Rupert charter will be considered to sample late spawnings, and a third full time charter vessel will be necessary for the Strait of Georgia if there is a fishery. This brings the total charter vessel requirement up to the 1984 level of 12 charter vessels.

Table 7. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREA 2 E, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. Catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Vol.	Roe Yield % Adj. vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd. out.	Juv. or immat.
025 (2E)	1	Huxley Island	04/03/86	1955		500/600	200/300	6.7	1	39	48	43	52	0	0	0	0	43		
									2	42	57	32	43	0	0	0	0	32		
025 (2E)	2	Deluge Point	05/03/86	2020		300/400	100	6.6	1	39	53	35	47	1.0	1.4	3	3	29		
									2	44	61	28	39	1.0	1.3	4	2	22		
024 (2E)	3	Atli Inlet	06/03/86	2025	800/1000	150	70/100	6.9	1	35	42	48	58	0	0	0	0	48		3
									2	38	44	48	56	0	0	0	0	48		
025 (2E)	4	Head of Huston Inlet	10/03/86	1135		300	2	6.7	1	44	63	26	37	8.0	10.8	21	3	2		
			Set not representative						2	41	64	23	36	8.0	11.1	19	3	1		
025 (2E)	5	Green Rock	10/03/86	1315		200/300	100	6.7	1	46	64	26	36	8.0	11.1	20	5	1		
									2	43	63	25	37	8.0	10.8	19	3	3		
									3	39	53	34	47	11.5	12.2	26	4	4		
025 (2E)	6	W. Side of Huxley Island	11/03/86	0920		200		6.7		Water haul										
025 (2E)	7	Park Island	11/03/86	1030		500/600		6.7		Water haul										
025 (2E)	8	Park Island	11/03/86	1230		500		6.8		Water haul										
024 (2E)	9	Sedgewick Bay	11/03/86	1730	5000/6000	800/1000	100	6.9	1	45	53	40	47	0	0	1	1	38		
									2	47	53	41	47	0	0	2	0	39		
024 (2E)	10	Richardson Point	11/03/86	2130		SKIMMER	80	6.8	1	49	56	38	44	0	0	0	0	38		
									2	36	43	48	57	0	0	0	0	48		
025 (2E)	11	W. Side of Huxley Island	12/03/86	0700		800	200/300	6.8	1	36	47	40	53	1.0	1.0	4	6	30		
									2	42	49	44	51	1.0	1.0	7	9	28		

Table 7 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREA 2 E, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or Immat.
					In loc.	Set on	Est. Catch			M		F		Vol.	Adj. Vol.	#1	#2	#3		
										No.	%	No.	%							
025 (2E)	12	Harriet Harbour	14/03/86	0945		200		6.8		Water haul										
025 (2E)	13	Harriet Harbour	14/03/86	1915		100	100	7.0	1	28	43	37	57	13.5	11.8	32	1	4		
									2	37	54	32	46	12.5	13.6	32	0	0		
									3	30	43	39	57	13.0	11.4	36	2	1		
025 (2E)	14	Section Island	15/03/86	1615				7.1		Water haul										
025 (2E)	15	Kat Island	15/03/86	1705		250	250	7.1	1	39	49	41	51	9.0	8.8	29	9	3		
									2	46	56	36	44	5.0	5.7	16	11	9		1
									3	48	59	33	41	6.0	7.3	20	7	6		
025 (2E)	16	Kat Island	16/03/86	0845		150	5	6.8	1	40	48	43	52	7.5	7.2	23	7	13		
									2	34	43	45	57	10.5	9.2	30	7	8		
									3	40	48	44	52	8.0	7.7	27	4	13		
025 (2E)	17	Off Park Island	16/11/86	1020		250	250	6.9	1	33	42	45	58	5.5	4.7	16	8	21		
									2	50	62	31	38	7.0	9.2	21	8	21		1
									3	52	65	28	35	5.0	7.1	17	1	10		
024 (2E)	18	NW. of Richardson Point	16/03/86	2010		1500	750	6.9	1	45	49	46	51	1.0	1.0	4	3	39		1
									2	38	42	52	58	0.5	0.4	3	3	46		1
									3	40	41	57	59	1.0	0.9	5	7	45		4
024 (2E)	19	Sedgewick Bay	17/03/86	1940		800	300	6.9	1	55	65	30	35	3.5	5.0	12	5	13		1
									2	39	46	46	54	3.5	3.2	16	7	23		
									3	43	51	41	49	6.0	6.1	20	7	14		1
021 (2E)	20	Bigsby Inlet	18/03/86	0910		200/300		6.7		Water haul										

Table 7 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREA 2 E, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or immat.
					In loc.	Set on	Est. Catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
025 (2E)	21	W. Side of Huxley Island	18/03/86	1235		100	50	7.1	1	39	50	39	50	12.5	12.5	29	3	7		
									2	39	48	42	52	10.0	9.6	29	3	10		
									3	49	58	35	42	8.5	10.1	25	2	8		
025 (2E)	22	Park Island	19/03/86	0930		150	80	7.1	1	39	48	42	52	10.5	10.1	30	5	7		
									2	40	51	39	49	10.0	10.2	29	3	7		
									3	41	48	44	52	10.0	9.6	30	6	8		
025 (2E)	23	E. of Limestone Rock	20/03/86	0635		2000	500	6.9	1	37	46	44	54	9.0	8.3	27	8	9		
									2	33	40	49	60	12.0	10.0	36	3	10		
									3	37	46	44	54	10.0	9.3	32	5	7		
025 (2E)	24	Wanderer Island	21/03/86	0725		200	100	6.8	1	41	50	41	50	11.0	11.0	32	4	5		
									2	36	42	49	58	13.5	11.6	42	2	5		
									3	42	49	43	51	10.0	9.8	32	7	4		
									4	41	48	44	52	12.5	12.0	38	1	5		
025 (2E)	25	Head of Huston Inlet	22/03/86	0620		400	200	7.0	1	42	56	33	44	12.0	13.6	31	2	0		
									2	41	51	39	49	12.0	12.2	36	2	1		
									3	41	53	37	47	12.5	13.3	35	2	0		
									4	41	53	37	47	11.5	12.2	37	0	0		
025 (2E)	26	Top of Bolkus Island	23/03/86	0655				7.1		Water haul										
025 (2E)	27	Bolkus to Slug Islet	23/03/86	0755		400	200	7.1	1	45	55	37	45	13.0	14.4	37	0	0		
									2	46	61	30	39	11.0	14.1	30	0	0		
									3	43	52	39	48	13.5	14.1	38	0	1		
025 (2E)	28	W. Side of Huxley Island	25/03/86	1145		200				Water haul										

Table 7 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREA 2 E, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. Catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Vol.	Roe Yield %: Adj. vol.	Roe Grade (Pcs): #1	Roe Grade (Pcs): #2	Roe Grade (Pcs): #3	Spnd. out.	Juv. or Immat.
025 (2E)	29	W. Side of Huxley Island	25/03/86	1250		600	300	7.2	1	43	47	49	53	12.0	11.3	42	3	4		
									2	49	56	38	44	9.5	10.8	34	1	3		
									3	46	49	48	51	13.0	12.7	43	0	5		
									4	45	49	46	51	12.0	11.8	41	2	3		
025 (2E)	30	NE. of Kat Island Charter Payment	26/03/86 (Begin pumping) (Mid pumped) (End pumped)	0645		100	78	7.0	1	35	44	45	56	14.0	12.5	42	2	1		
									2	38	46	45	54	14.5	13.4	45	0	0		
									3	39	44	49	56	15.0	13.4	48	1	0		
									4	46	52	42	48	12.0	12.5	40	2	0		
024 (2E)	31	Mid. Sedgwick Bay	26/03/86	2000	1000	400	300	7.1	1	38	45	47	55	13.0	11.8	42	0	5		
									2	49	56	38	44	10.0	11.4	37	0	1		
									3	45	50	45	50	13.0	13.0	44	0	1		
024 (2E)	32	N. of Klimington Point	28/03/86	1540		300				Water haul										
024 (2E)	33	Between Trotter Bay & Trainer Creek	28/03/86	2045			5	6.8		Set not representative										
024 (2E)	34	W. of Klimington Point	29/03/86	1145		300	300	6.8	1	45	52	41	48	10.0	10.4	37	0	4		
									2	47	52	44	48	10.5	10.9	40	0	4		
									3	44	47	49	53	13.0	12.3	45	0	4		
024 (2E)	35	E. of Trotter Bay	30/03/86	1600		100	10	6.8	1	55	59	38	41	10.0	12.2	34	1	3		
									2	42	49	44	51	13.5	13.2	43	1	0		
									3	40	43	52	57	13.0	11.4	48	2	2		
025 (2E)	36	E. of Kat Island	31/03/86	0615		150	150	6.9	1	44	54	38	46	11.5	12.5	38	0	0		
									2	29	36	51	64	16.5	12.9	51	0	0		
									3	42	46	50	54	14.0	13.0	50	0	0		

Table 7 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREA 2 E, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or Immat.
					In loc.	Set on	Est. Catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
025 (2E)	37	Huston Inlet	31/03/86	1450		100	100	7.0	1	40	49	41	51	14.5	14.2	41	0	0		
									2	36	45	44	55	14.5	13.2	44	0	0		
									3	33	37	56	63	16.0	12.7	56	0	0		

Table 8. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREA 2 E, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
025 (2E)	1	Huxley Island	04/03/86	1955	1							1		3	21	32	28	12	3	1		101	22.8	19.0	1
025 (2E)	2	Deluge Point	05/03/86	2020	2							1		1	6	21	29	32	10			100	23.6	19.0	1
024 (2E)	3	Atli inlet	06/03/86	2025	3							1	3	11	40	23	12	7	3			100	22.1	19.0	1
025 (2E)	4	Head of Huston Inlet	10/03/86	1135	Sample not representative										3	10	32	38	14	3		100	24.1	19.0	0
025 (2E)	5	Green Rock	10/03/86	1315	4									1	6	16	22	32	21	1		99	24.0	19.0	0
025 (2E)	6	W. Side of Huxley Island	11/03/86	0920	Water haul																				
025 (2E)	7	Park Island	11/03/86	1030	Water haul																				
025 (2E)	8	Park Island	11/03/86	1230	Water haul																				
024 (2E)	9	Sedgewick Bay	11/03/86	1730	5						1			4	14	32	26	20	2	1		100	23.0	19.0	1
024 (2E)	10	Richardson Point	11/03/86	2130	6									5	31	25	29	8	2			100	22.6	19.0	0
025 (2E)	11	W. Side of Huxley Island	12/03/86	0700	7									1	14	36	26	16	5	1		99	23.1	19.0	0
025 (2E)	12	Harriet Harbour	14/03/86	0945	Water haul																				
025 (2E)	13	Harriet Harbour	14/03/86	1915	8										4	11	23	38	21	3		100	24.2	19.0	0
025 (2E)	14	Section Island	15/03/86	1615	Water haul																				
025 (2E)	15	Kat Island	15/03/86	1705	9									1	11	32	34	15	6			99	23.2	19.0	0

Table 8 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREA 2 E, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
025 (2E)	16	Kat Island	16/03/86	0845	10								1	1	14	33	27	18	4	2		100	23.1	19.0	0
025 (2E)	17	Off Park Island	16/03/86	1020	11									3	8	27	30	23	6	3		100	23.4	19.0	0
024 (2E)	18	NW. of Richardson Point	16/03/86	2010	12							1		3	23	37	22	11	3			100	22.7	19.0	1
024 (2E)	19	Sedgewick Bay	17/03/86	1940	13									4	15	29	28	14	8	2		100	23.2	19.0	0
021 (2E)	20	Bigsby Inlet	18/03/86	0910				Water haul																	
025 (2E)	21	W. Side of Huxley Island	18/03/86	1235	14										10	25	24	25	14	2		100	23.6	19.0	0
025 (2E)	22	Park Island	19/03/86	0930	15									4	12	27	26	20	10	1		100	23.3	19.0	0
025 (2E)	23	E. of Limestone Rock	20/03/86	0635	16									1	14	31	27	21	5	1		100	23.2	19.0	0
025 (2E)	24	Wanderer Island	21/03/86	0725	17								1	1	13	26	38	12	8	1		100	23.2	19.0	0
025 (2E)	25	Head of Huston Inlet	22/03/86	0620	18									2	8	16	29	33	9	1	2	100	23.7	19.0	0
025 (2E)	26	Top of Bolkus Island	23/03/86	0655				Water haul																	
025 (2E)	27	Bolkus to Slug Islet	23/03/86	0755	19								1	3	18	31	24	17	6			100	23.0	19.0	
025 (2E)	28	W. Side of Huxley Island	25/03/86	1145				Water haul																	
025 (2E)	29	W. Side of Huxley Island	25/03/86	1250	20						1	1		4	22	38	17	13	2	2		100	22.7	19.0	2
025 (2E)	30	NE. of Kat Island	26/03/86	0645	21	Charter payment							1	6	22	35	21	13	2			100	22.7	19.0	0

Table 8 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREA 2 E, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
024 (2E)	31	Mid. Sedgwick Bay	26/03/86	2000	22									3	16	39	24	13	4	1		100	22.9	19.0	0
024 (2E)	32	N. of Klimington Point	28/03/86	1540		Water haul																			
024 (2E)	33	Between Trotter Bay & Trainer Creek	28/03/86	2045	23	Sample not representative																			
024 (2E)	34	W. of Klimington Point	29/03/86	1145	24									11	32	35	16	5	1			100	22.3	19.0	0
024 (2E)	35	E. of Trotter Bay	30/03/86	1600	25								1	14	34	25	20	4	2			100	22.2	19.0	0
024 (2E)	36	E. of Kat Island	31/03/86	0615	26									1	19	32	32	12	4			100	23.0	19.0	0
024 (2E)	37	Huston Inlet	31/03/86	1450	27									5	17	19	33	21	6			101	23.4	19.0	0

Table 9. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "VENTUROUS", STAT. AREAS 2 W & 2 E, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or immat.
					In loc.	Set on	Est. Catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
002 (2W)	1	Port Louis Inside Turner Pt.	05/03/86	1541		100	100		1	27	47	30	53	13.0	12.3	25	2	3		
									2	30	54	26	46	12.0	13.0	24	0	2		
									3	40	63	24	37	12.0	16.2	23	0	1		
002 (2W)	2	Port Louis Outside Solide Isl.	05/03/86	1241		75			Water haul											
002 (2W)	3	Port Louis Outside Solide Isl.	05/03/86	1800		75	5		1	31	53	28	47	8.0	8.5	17	5	6		
									2	33	52	30	48	7.0	7.3	16	5	9		
									3	27	44	35	56	11.0	9.8	26	1	8		
									4	37	58	27	42	7.0	8.3	12	2	13		
002 (2W)	4	Port Louis 1 mi. NW. Channel Pt.	05/03/86	1956	600/700	100	100		1	30	51	29	49	10.0	10.2	21	2	6		
									2	29	46	34	54	13.0	12.0	28	3	3		
									3	28	46	33	54	11.0	10.2	24	5	4		
002 (2W)	5	Port Louis Solide Isl. & Channel Pt.	05/03/86	1900	800	150			Water haul											
002 (2W)	6	Port Louis Solide Isl. & Channel Pt.	08/03/86	1555	1000	50			Water haul											
002 (2W)	7	Port Louis Outside Solide Isl.	09/03/86	0850		75			Water haul											
002 (2W)	8	Port Louis Outside Solide Isl.	09/03/86	1000	1000	100			Water haul											
002 (2W)	9	Port Louis Outside Solide Isl.	09/03/86	1200	1000	200		7.0	Water haul											
003 (2W)	10	Rennel Sound Inside Shellds Isl.	10/03/86	0830		30		7.0	Water haul											
005 (2W	11	Inskip Channel Off Hastings Pt.	11/03/86	0724	1000	300/400		7.1	Water haul											

Table 9 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "VENTUROUS", STAT. AREAS 2 W & 2 E, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or Immat.
					In loc.	Set on	Est. Catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
005 (2W)	12	Inskip Channel Off Hastings Pt	11/03/86	1715	1000	100		7.0		Water haul										
005 (2W)	13	Between Hastings Pt. & Instructor Isl.	11/03/86	1835	1300	100	10/15	6.8	1	4	6	67	94	0	0	0	0	67		
									2	2	2	80	98	0	0	0	0	80		
005 (2W)	14	1 mi. W. of Hastings Pt.	12/03/86	0615	1300	200				Water haul										
005 (2W)	15	W. of Hastings Pt.	12/03/86	0700		200				Water haul										
005 (2W)	16	1 mi. W. Hastings Pt. along S. Shore	12/03/86	1855		75	75	6.9	1	14	18	64	82	0	0	0	0	64	2	
									2	6	7	82	93	0	0	0	0	82		
									3	9	10	77	90	0	0	0	0	77	2	
006 (2W)	17	Louscoome Inlet	14/03/86	2000	200	200	80/100	7.6	1	130	72	50	28	0	0	2	1	47	33	
									2	124	67	60	33	0	0	1	2	57	29	
025 (2E)	18	Jedway	16/03/86	1010	1000	300	50/70		1	40	53	36	47	10.0	10.6	30	1	5		
									2	45	57	34	43	11.0	12.8	32	1	1		
									3	28	37	48	63	14.5	11.5	40	3	5		
									4	44	53	39	47	9.0	9.6	26	7	6		
025 (2E)	19	Harriet Harbour	18/03/86	0747						Water haul										
025 (2E)	20	Huston Inlet	18/03/86	1021				6.9		Water haul										
025 (2E)	21	Huston Inlet	18/03/86	1130				6.9		Water haul										
025 (2E)	22	Off Harriet Harbour	18/03/86	2142	1500	200	200	7.1	1	30	37	51	63	14.5	11.5	47	3	1		
									2	40	51	38	49	12.0	12.2	34	0	4	1	
									3	43	54	37	46	12.0	13.0	32	3	2		

Table 9 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "VENTUROUS", STAT. AREAS 2 W & 2 E, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. Catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Vol.	Roe Yield %: Adj. vol.	Roe Grade (Pcs): #1	Roe Grade (Pcs): #2	Roe Grade (Pcs): #3	Spnd. out.	Juv. or Immat.
025 (2E)	23	Huston Inlet	18/03/86	2311	300 / 400	250 / 300	200	7.3	1	47	57	35	43	11.0	12.8	33	2	0		
									2	36	46	42	54	15.5	14.4	41	1	0		
									3	35	44	45	56	15.0	13.4	44	1	0		
025 (2E)	24	Off Harriet Harbour	20/03/86	0836	4000		400	7.1	1	41	47	47	53	11.5	10.8	38	7	2		
									2	40	49	42	51	13.0	12.7	41	1	0		
									3	48	55	39	45	12.0	13.3	35	2	2		
									4	54	61	34	39	9.0	11.5	29	1	4		
025 (2E)	25	Off Harriet Harbour	21/03/86	0720		1000 / 1500		7.0		Water haul										
025 (2E)	26	Off Harriet Harbour	21/03/86	0814		150	150	7.0	1	48	55	40	45	12.8	14.2	39	0	1		
									2	49	56	38	44	11.0	12.5	36	1	1		
									3	43	51	41	49	13.0	13.3	41	0	0		
									4	49	56	39	44	11.5	13.1	37	0	2		
									5	41	48	45	52	14.5	13.9	45	0	0		
025 (2E)	27	Off Jedway Mine	21/03/86	1927						Water haul										
025 (2E)	28	Deluge Point	22/03/86	0740		100 / 150				Water haul										
025 (2E)	29	Slug Islet	22/03/86	0837		1000	500	7.0	1	53	60	36	40	11.0	13.8	36	0	0		
									2	38	44	48	56	15.0	13.4	48	0	0		
									3	30	34	59	66	17.0	12.9	56	2	1		
025 (2E)	30	Skincuttle Inlet Bolkus Island	23/03/86	0651						Water haul										
025 (2E)	31	Skincuttle Inlet Bolkus Island	23/03/86	0744						Water haul										
025 (2E)	32	Huxley Island	24/03/86	1640		150 / 200				Water haul										

Table 9 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "VENTUROUS", STAT. AREAS 2 W & 2 E, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. Catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Vol.	Roe Yield %: Adj. vol.	Roe Grade (Pcs): #1	Roe Grade (Pcs): #2	Roe Grade (Pcs): #3	Spnd. out.	Juv. or immat.
025 (2E)	33	Huxley Island	24/03/86	2015		HEAVY SKIMMER		7.0	1	51	57	38	43	10.5	12.2	33	2	3		
									2	41	51	40	49	12.0	12.2	37	2	1		
									3	47	53	41	47	10.5	10.7	34	6	1		
025 (2E)	34	Wanderer Island	25/03/86	1155				6.9		Water haul										
025 (2E)	35	Kat Island	25/03/86	1430		150		7.1	1	35	38	56	62	16.5	13.3	54	2	0		
									2	32	37	55	63	15.5	12.3	52	3	0		
									3	51	53	45	47	14.5	15.4	43	1	1		
025 (2E)	36	Kat Island	25/03/86	1640		150		7.1		Water haul										
025 (2E)	37	Opposite Kat Island	25/03/86	1855				7.0		Water haul										
025 (2E)	38	Kat Island	25/03/86	1925			25	7.0	1	44	52	41	48	11.5	12.0	32	4	5		
									2	46	55	38	45	11.5	12.8	34	2	2		
									3	39	46	45	54	14.5	13.4	39	3	3		
									4	42	49	44	51	13.0	12.7	42	0	2		
025 (2E)	39	Kat Island	26/03/86	0600			10	7.0	1	42	45	52	55	15.0	13.6	48	3	1		
									2	25	31	55	69	16.0	11.6	53	1	1		
		Charter Payment (Begin pumping)							3	53	59	37	41	10.0	12.2	34	1	2		
		(Mid pumped)							4	40	45	48	55	13.8	12.5	43	3	2		
		(End pumped)							5	46	48	50	52	16.0	15.4	50	0	0		
From Christav Test Set #25									1	24	31	54	69	16.0	11.6	52	1	1		

Table 10. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "VENTUROUS", STAT. AREAs 2 W & 2 E, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
002 (2W)	1	Port Louis Inside Turner Pt.	05/03/86	1541	1										1		1	9	53	29	6	99	25.5	20.0	0
002 (2W)	2	Port Louis Outside Solide Isl.	05/03/86	1241				Water haul																	
002 (2W)	3	Port Louis Outside Solide Isl.	05/03/86	1800	2							1				1	3	6	21	18		50	25.4	20.0	2
002 (2W)	4	Port Louis 1 mi. N.W. Channel Pt.	05/03/86	1956	3					1		1			1		7	11	46	29	4	100	25.4	20.0	2
002 (2W)	5	Port Louis Between Solide Isl. & Channel Pt.	06/03/86	1900				Water haul																	
002 (2W)	6	Port Louis Between Solide Isl. & Channel Pt.	08/03/86	1555				Water haul																	
002 (2W)	7	Port Louis Outside Solide Isl.	09/03/86	0850				Water haul																	
002 (2W)	8	Port Louis Outside Solide Isl.	09/03/86	1000				Water haul																	
002 (2W)	9	Port Louis Outside Solide Isl.	09/03/86	1220				Water haul																	
003 (2W)	10	Rennel Sound Inside Shields Isl.	10/03/86	0830	4			Water haul																	
005 (2W)	11	Inskip Channel Off Hastings Pt.	11/03/86	0724				Water haul																	
005 (2W)	12	Inskip Channel Off Hastings Pt.	11/03/86	1715				Water haul																	
005 (2W)	13	Between Hastings Pt. & Instructor Isl.	11/03/86	1835	5							1		2	17	35	33	12	1			101	23.8	20.0	1
005 (2W)	14	1 mi. w. of Hastings Pt.	12/03/86	0615				Water haul																	
055 (2W)	15	W. of Hastings Pt.	12/03/86	0700				Water haul																	

Table 10 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "VENTUROUS", STAT. AREAs 2 W & 2 E, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
005 (2W)	16	1 mi. W. Hastings Pt. along S. Shore	12/03/86	1855	6							1		2	9	15	39	18	16			100	23.6	20.0	1
006 (2W)	17	Louscoone Inlet	14/03/86	2000	7					3	41	47	8	1								100	18.1	20.0	99
025 (2E)	18	Jedway	16/03/86	1010	8							1		1	8	20	27	22	16	3		98	23.6	19.0	1
025 (2E)	19	Harriet Harbour	18/03/86	0747				Water haul																	
025 (2E)	20	Huston Inlet	18/03/86	1021				Water haul																	
025 (2E)	21	Huston Inlet	18/03/86	1130				Water haul																	
025 (2E)	22	Off Harriet Harbour	18/03/86	2142	9									1	6	27	29	21	15	1		100	23.6	19.0	0
025 (2E)	23	Huston Inlet	18/03/86	2311	10									2	10	22	29	21	15	1		100	23.6	19.0	0
025 (2E)	24	Off Harriet Harbour	20/03/86	0836	11								1		9	32	25	20	9	4		100	23.5	19.0	0
025 (2E)	25	Off Harriet Harbour	21/03/86	0720				Water haul																	
025 (2E)	26	Off Harriet Harbour	21/03/86	0814	12									1	20	32	29	15	4			101	23.0	19.0	0
025 (2E)	27	Off Jedway Mine	21/03/86	1927				Water haul																	
025 (2E)	28	Deluge Point	22/03/86	0740				Water haul																	
025 (2E)	29	Slug Islet	22/03/86	0837	13									5	13	26	31	16	9			100	23.2	19.0	0
025 (2E)	30	Skincuttle Inlet Bolkus Island	23/03/86	0651				Water haul																	

Table 10 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "VENTUROUS", STAT. AREAS 2 W & 2 E, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
025 (2E)	31	Skincuttle Inlet Bolkus Island	23/03/86	0744				Water haul																	
025 (2E)	32	Huxley Island	24/03/86	1640				Water haul																	
025 (2E)	33	Huxley Island	24/03/86	2015									2	2	30	29	21	12	3	1		100	22.7	19.0	0
025 (2E)	34	Wanderer Island	25/03/86	1155				Water haul																	
025 (2E)	35	Kat Island	25/03/86	1430	14								1	7	21	29	32	6	4			100	22.7	19.0	0
025 (2E)	36	Kat Island	25/03/86	1640				Water haul																	
025 (2E)	37	Opposite Kat Island	25/03/86	1855				Water haul																	
025 (2E)	38	Kat Island	25/03/86	1925	15							1	1	8	18	29	30	9	31			127	23.4	19.0	1
025 (2E)	39	Kat Island	26/03/86	0600	16			Charter payment						2	5	16	42	18	10		1	94	23.3	19.0	0
From Christav test set #25			No information																						

Table 11. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "KARENORA II", STAT. AREAS 3 - 5, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. Catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Vol.	Roe Yield % Adj. vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd. out.	Juv. or Immat.
032 (3)	1	Somerville Island Elliott Point	14/03/86	0710		100	40	5.9	1	57	54	49	46	0	0	0	0	49		
			Tagged 500 herring																	
032 (3)	2	Union Inlet	14/03/86	1330		20				Juvenile herring										
032 (3)	3	Hogan Island (John Point)	14/03/86	1445		200	100	6.4	1	58	51	56	49	0	0	0	0	56		
			Tagged 498 herring																	
033 (3)	4	Birnie Island	15/03/86	1250		50				Water haul										
033 (3)	5	Haida Bay	15/03/86	1745	500	150	150	6.5	1	65	52	60	48	0	0	0	0	60		
			Tagged 996 herring																	
052 (5)	6	Kitkatla Creek	18/03/86	0955	500	250	125	6.2	1	56	63	33	37	4.0	5.4	16	10	7	1	
			Tagged 992 herring						2	44	53	39	47	7.0	7.4	26	7	6	1	
052 (5)	7	Willis Bay	21/03/86	1220	100	50	50	6.5	1	46	45	57	55	10.0	9.1	38	7	12		
			Tagged 1999 herring						2	49	45	59	55	8.5	7.7	34	11	14		
									3	42	39	65	61	10.0	8.2	38	14	13		
052 (5)	8	Willis Bay	22/03/86	1035	250	75				Water haul										
052 (5)	9	Willis Bay	24/03/86	0734	600	75				Water haul										
052 (5)	10	Willis Bay	24/03/86	0835	600	30				Water haul										

Table 11 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "KARENORA II", STAT. AREAS 3 - 5, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or Immat.
					In loc.	Set on	Est. Catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
052 (5)	11	Willis Bay	25/03/86	1035	700	50	30	6.4	1	50	49	52	51	5.0	4.9	19	12	21		
									2	61	55	50	45	5.0	5.6	24	12	14		
									3	64	59	44	41	6.0	7.3	24	3	17		
052 (5)	12	Kitkatla Creek	26/03/86	0740		30	15	6.3	1	53	54	45	46	11.0	12.0	42	1	2		
									2	53	52	48	48	11.0	11.5	44	2	2		
									3	54	53	48	47	10.0	10.6	39	5	4		
052 (5)	13	Willis Bay	26/03/86	1120	1300	200	100	6.7	1	61	50	60	50	6.5	6.5	30	8	22		
			Tagged 1550 herring						2	49	44	62	56	8.0	7.1	35	11	16		
									3	49	47	55	53	9.0	8.5	36	7	12		
052 (5)	14	Willis Bay	27/03/86	0950	600	250	150	6.7	1	50	47	57	53	8.0	7.5	32	14	11		
			Tagged 434 herring						2	48	43	64	57	10.0	8.8	36	11	17		
									3	52	45	64	55	9.0	8.2	34	15	15		
052 (5)	15	Kitkatla Gravel Pit	28/03/86	0920		125	75	6.6	1	55	53	49	47	9.0	9.6	33	8	8		
									2	50	48	54	52	11.0	10.6	41	10	3		
									3	57	53	51	47	10.0	10.6	36	10	5		
									4	55	51	53	49	9.0	9.2	34	15	4		
052 (5)	16	Kitkatla Gravel Pit	29/03/86	1330		50	20	6.5	1	57	52	53	48	10.0	10.4	38	13	2		1
									2	55	51	52	49	12.0	12.2	42	7	3	1	
									3	55	51	52	49	11.0	11.2	46	5	1		
									4	44	41	63	59	12.5	10.6	45	13	5		
052 (5)	17	E. Gurd Island	29/03/86	1535		200	150	6.5	1	48	51	46	49	14.0	14.3	43	3	0		
									2	48	48	52	52	12.0	11.5	44	7	1	1	
									3	53	50	52	50	12.0	12.0	43	9	0		
									4	54	51	52	49	13.5	13.8	46	6	0		

Table 11 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "KARENORA II", STAT. AREAS 3 - 5, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or Immat.
					In loc.	Set on	Est. Catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
052 (5)	18	Snass Point	30/03/86	0930		100	100	6.3	1	49	47	55	53	13.0	12.3	52	2	1	1	
									2	53	52	49	48	10.5	10.9	42	5	2		
									3	47	42	65	58	15.0	12.9	57	8	0		
									4	64	57	49	43	10.0	11.6	40	7	2		
052 (5)	19	W. of Robert Isl.	31/03/86	0540		150	100	6.4	1	45	44	58	56	14.0	12.5	48	8	2		
									2	44	43	59	57	14.0	12.3	51	8	0	1	
									3	55	52	51	48	14.5	15.1	48	3	0		
									4	60	54	52	46	11.0	12.0	43	5	4		
052 (5)	20	Off Absalom Isl.	31/03/86	0930		50	50		1	47	46	56	54	13.0	12.0	49	2	5		
									2	52	49	55	51	12.0	11.8	49	6	0	1	
									3	65	61	41	39	9.0	11.5	34	5	2	1	
									4	62	56	48	44	10.0	11.4	38	10	0		
									5	49	45	59	55	14.0	12.7	47	7	5		
052 (5)	21	W. of Gurd Isl.	02/04/86	0550	2000	100	100		1	43	43	57	57	15.0	13.2	56	0	1	1	
									2	45	47	51	53	14.0	13.2	47	1	3	1	
									3	50	49	53	51	13.0	12.7	47	4	2		
									4	54	50	54	50	14.0	14.0	50	4	0		
									5	43	40	64	60	15.0	12.5	58	4	2	1	
052 (5)	22	Kitkatla Channel	03/04/86	1615		100+	0			Water haul										
052 (5)	23	Kitkatla Channel	04/04/86	0530	200	25	25	6.5	1	53	55	44	45	12.0	13.3	42	0	2		
									2	55	53	49	47	14.0	14.9	49	0	0		
									3	42	41	60	59	17.0	14.4	60	0	0	1	
052 (5)	24	Porcher Pen. Shore	05/04/86	1730		150	0	6.6		Water haul										

Table 11 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "KARENORA II", STAT. AREAS 3 - 5, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. Catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Vol.	Roe Yield % Adj. vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd. out.	Juv. or Immat.
052 (5)	25	Kitkatla Gravel Pit	07/04/86	0540		100	50		1	48	45	58	55	14.0	12.7	56	1	1		
		Charter payment		Test 1 & 2 (Begin pumping)					2	53	50	54	50	14.5	14.5	54	0	0		
				Test 3 - 6 (Mid pumped)					3	49	51	48	49	13.0	13.3	47	0	1		
									4	50	50	50	50	14.5	14.5	48	2	0		
									5	61	59	42	41	10.5	12.8	42	0	0		
									6	53	48	58	52	14.5	13.9	57	1	0		
		Charter payment		Test 7 - 9 (3/4 pumped)					7	65	62	40	38	9.0	11.8	40	0	0		
									8	59	53	53	47	12.5	13.3	53	0	0		
									9	56	51	53	49	13.5	13.8	53	0	0		
				Test 10 - 11 (End pumped)					10	61	55	50	45	14.0	15.6	50	0	0		
									11	60	52	56	48	14.5	15.1	56	0	0		
043 (4)	26	N. of Archer Isl.	08/04/86	0730	35	25	25	6.7	1	44	44	56	56	13.2	11.8	52	2	2		
									2	55	51	52	49	11.0	11.2	48	2	2		
									3	47	44	59	56	13.8	12.3	56	0	3		
043 (4)	27	Henderson Point	08/04/86	1910	60	25	15	6.7	1	55	71	22	29	0	0	0	0	22		219
052 (5)	28	Willis Bay	11/04/86	0800		200	200	6.6	1	56	50	57	50	12.2	12.2	52	3	2		
									2	49	44	63	56	14.2	12.7	59	0	4		
									3	67	53	60	47	13.0	13.8	51	4	5		
052 (5)	29	Willis Bay	11/04/86	1000		80/100				Water haul										
052 (5)	30	Willis Bay	11/04/86	1030		75	25	6.6	1	47	39	73	61	17.0	13.9	69	1	3		
		Tagged 2000 herring							2	61	50	62	50	13.5	13.5	57	2	3		
									3	55	43	73	57	15.5	13.6	67	2	4	1	

Table 12. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "KARENORA II", STAT. AREAS 3 - 5, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
032 (3)	1	Somerville Isl. Elliot Point	14/03/86	0710	1							5	11	19	28	25	9	3				100	21.5	18.5	1
032 (3)	2	Union Inlet	14/03/86	1330		Juvenile herring																			
032 (3)		Hogan Island (John Point)	14/03/86	1445	2					1	1	5	14	16	25	23	8	2				95	21.3	18.5	3
033 (3)	4	Bernie Island	15/03/86	1250		Water haul																			
033 (3)	5	Haida Bay	15/03/86	1745	3							6	5	32	32	18	7					100	21.2	18.5	1
052 (5)	6	Kitkatla Creek	18/03/86	0955	4								7	6	13	38	28	6	1			99	22.5	18.5	0
052 (5)	7	Willis Bay	21/03/86	1220	5						1		3	10	27	32	20	5	2			100	22.3	18.5	1
052 (5)	8	Willis Bay	22/03/86	1035		Water haul																			
052 (5)	9	Willis Bay	24/03/86	0735		Water haul																			
052 (5)	10	Willis Bay	24/03/86	0835		Water haul																			
052 (5)	11	Willis Bay	25/03/86	1050	6							2	7	13	30	28	13	5	1	1		100	22.0	18.5	2
052 (5)	12	Kitkatla Creek	26/03/86	0740	7							1	8	9	26	35	11	7	3			100	22.1	18.5	1
052 (5)	13	Willis Bay	26/03/86	1120	8						3	0	6	20	32	26	11	2				100	21.6	18.5	3
052 (5)	14	Willis Bay	27/03/86	0950	9						1	3	12	15	29	24	8	6	2			100	21.6	18.5	2
052 (5)	15	Kitkatla Gravel Pit	28/03/86	0920	10						1	3	2	15	17	35	19	5	3			100	22.2	18.5	1

Table 12 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "KARENORA II", STAT. AREAS 3 - 5, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 / 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
052 (5)	16	Kitkatla Gravel Pit	29/03/86	1330	11	1 4 4 14 22 36 12 6	99	21.9	18.5	2
052 (5)	17	E. Gurd Island	29/03/86	1535	12	2 3 11 35 29 15 4 1	100	22.0	18.5	2
052 (5)	18	Snass Point	30/03/86	0930	13	1 9 5 16 25 24 13 6 1	100	21.7	18.5	1
052 (5)	19	W. of Robert Island	31/03/86	0540	14	1 1 5 4 14 26 23 22 4	100	21.8	18.5	3
052 (5)	20	Off Absalom Isl.	31/03/86	0930	15	2 4 6 12 23 31 14 7	99	21.9	18.5	3
052 (5)	21	W. Gurd Island	02/04/86	0550	16	1 1 3 6 9 22 33 12 7 4 1	99	22.1	18.5	3
052 (5)	22	Kitkatla Channel	03/04/86	1615		Water haul				
052 (5)	23	Kitkatla Channel	04/04/86	0530	17	2 1 2 4 14 20 34 18 4 1	100	21.9	18.5	4
052 (5)	24	Porcher Pen. Shore	05/04/86	1730		Water haul				
052 (5)	25	Kitkatla Gravel Pit	07/04/86	0540	18	Charter payment 1 0 5 10 18 25 24 11 4	98	21.5	18.5	2
052 (5)	25	Kitkatla Gravel Pit	07/04/86	0540	18	Charter payment 2 4 6 8 14 28 32 25 8 5 1 1	134	21.0	18.5	12
043 (4)	26	N. tip Porcher Island	08/04/86	0730	19	2 2 6 17 28 25 16 4	100	21.8	18.5	3
043 (4)	27	Henderson Point	08/04/86	1910	20	9 29 29 17 1 6 2 2 1 2 1	100	15.8	18.5	88
052 (5)	28	Willis Bay	11/04/86	0800	21	2 6 7 15 15 27 17 9 2	100	20.9	18.5	14
052 (5)	29	Willis Bay	11/04/86	1000		Water haul				

Table 12 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "KARENORA II", STAT. AREAS 3 - 5, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
052 (5)	30	Willis Bay	11/04/86	1030					1	2	5	9	16	20	25	16	5	1				100	20.6	18.5	12

Table 13. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 3 - 5, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or immat.
					In loc.	Set on	Est. Catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
033 (3)	1	Halda Bay	20/03/86	1405	600/700	200	300 lb	6.7	1	65	59	45	41	0	0	0	8	37		1
033 (3)	2	Halda Bay	20/03/86	1615		200	300 lb	6.5		Set not representative										
032 (3)	3	Union Inlet	20/03/86	1725		1500	350	7.0	1	58	56	46	44	0.8	0.9	4	8	34		
033 (3)	4	Halda Bay	21/03/86	1815	750	200	150	6.5	1	49	50	49	50	2.2	2.2	10	13	26		1
									2	47	45	58	55	3.5	3.2	15	12	31		
032 (3)	5	Hogan Island	22/03/86	0945	1000	200		6.3		Water haul										
032 (3)	6	Hogan Island	22/03/86	1728	1000	300	200	6.5	1	44	42	60	58	3.0	2.6	17	10	33		
									2	52	48	57	52	2.7	2.6	12	16	29		
033 (3)	7	Stumaun Bay	23/03/86	0634	400	150	100	6.2	1	49	48	54	52	3.5	3.4	14	29	11		
									2	50	51	48	49	3.7	3.8	15	14	19		
042 (4)	8	Pearl Harbour	24/03/86	1032	1800	300	250	6.7	1	57	52	52	48	8.0	8.3	33	13	6		
									2	61	51	59	49	6.2	6.3	34	13	12		
									3	60	55	50	45	6.4	7.1	29	15	6		
									4	65	55	53	45	6.3	7.0	24	19	10		
033 (3)	9	Stumaun Bay	24/03/86	1955		20	3	6.8	1	50	45	61	55	3.0	2.7	14	25	22		1
									2	57	48	61	52	4.3	4.1	24	19	18		
									3	50	46	59	54	4.0	3.7	17	10	32		
042 (4)	10	Pearl Harbour	25/03/86	0915	3000	100		7.2		Water haul										

Table 13 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 3 - 5, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or Immat.
					In loc.	Set on	Est. Catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
042 (4)	11	Pearl Harbour Bay	25/03/86	1009		250	200	6.5	1	46	47	52	53	9.0	8.5	33	14	5		
									2	44	44	57	56	12.0	10.7	45	9	3		
									3	56	52	51	48	8.5	8.9	34	12	5		
									4	52	50	51	50	9.8	9.8	35	9	7		
042 (4)	12	Pearl Harbour	26/03/86	0625	1500	300/400	300	6.5	1	52	51	50	49	11.0	11.2	42	2	6		
									2	59	54	51	46	10.5	11.4	43	5	3		
									3	52	47	58	53	10.0	9.4	44	8	6		
033 (3)	13	Cunningham Pass	26/03/86	0850	400	80	70	6.4	1	51	49	54	51	7.0	6.9	29	9	21		3
									2	48	47	55	53	4.0	3.8	20	10	25		
									3	52	47	59	53	5.0	4.7	23	11	25		
033 (3)	14	Staaman Bay	26/03/86	1807	200	100	90	6.7	1	58	52	54	48	7.2	7.5	33	9	12		
									2	52	43	69	57	8.5	7.5	38	16	15		
									3	58	50	59	50	5.0	5.0	23	16	20		
									4	51	42	71	58	8.0	6.9	31	16	24		
042 (4)	15	Pearl Harbour	27/03/86	0712	2000	300	40	6.5	1	50	51	49	49	10.5	10.7	42	4	3		1
									2	58	54	50	46	8.0	8.7	33	9	8		
									3	48	46	56	54	11.3	10.5	44	6	6	1	
									4	68	60	46	40	9.0	11.3	38	4	4		
047 (4)	16	Pearl Harbour	27/03/86	1635	4000				1	41	44	53	56	13.3	11.9	46	3	4		
									2	41	41	60	59	14.5	12.3	52	4	4		
									3	54	52	50	48	10.5	10.9	40	8	2		
									4	50	45	61	55	12.0	10.9	50	9	2		
033 (3)	17	Cunningham Pass	28/03/86	0750	300	150	130	6.5	1	41	45	50	55	8.0	7.3	31	10	9	1	
									2	54	53	48	47	10.0	10.6	40	3	5		
									3	51	52	47	48	8.5	8.9	32	6	9		
									4	55	51	53	49	7.5	7.7	34	8	13	1	

Table 13 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 3 - 5, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. Catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Vol.	Roe Yield % Adj. vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd. out.	Juv. or immat.
033 (3)	18	Head of Stumaun Bay	28/03/86	1050	600	300	200	6.4	1	41	38	66	62	12.0	9.7	48	10	8		
									2	55	53	49	47	8.3	8.8	37	8	4		
									3	45	43	60	57	10.0	8.8	40	9	11		
042 (4)	19	Big Bay	29/03/86	0937		1000	150	6.5	1	61	61	39	39	8.3	10.6	34	3	2		
									2	52	48	56	52	12.5	12.0	47	7	2		
									3	59	56	47	44	11.0	12.5	44	3	0		
									4	63	58	45	42	12.0	14.3	43	2	0		
									5	51	46	59	54	14.0	13.0	55	2	2		
033 (3)	20	Stumaun Bay	31/03/86	2030		SKIMMER	7	6.3	1	59	55	48	45	0	0	3	4	41		69
052 (5)	21	Kitkatla	05/04/86	0641		100	50		1	27	29	66	71	17.0	12.0	65	0	1		
		Charter payment		Test 1 - 4 (Begin pumping)					2	41	43	54	57	14.5	12.7	53	0	1		
				Packer "Ocean Horizon"					3	39	39	60	61	14.5	11.9	55	3	2		
									4	41	42	57	58	14.5	12.5	57	0	0		
				Test 5 - 6 (Mid pumped)					5	61	61	39	39	10.8	13.8	39	0	0		
									6	44	43	59	57	16.0	14.0	59	0	0		
				Test 7 (End pumped)					7	71	65	39	35	9.5	13.6	35	3	1		
052 (5)	22	Kitkatla West Side	05/04/86	0659		20/50				Water haul										
052 (5)	23	Kitkatla West Side	05/04/86	1135		15	5	6.8		Juvenile herring										
052 (5)	24	Kitkatla N.W. Side	05/04/86	1250		20		6.8	1	61	55	49	45	13.8	15.3	48	1	0		
		Charter payment		Test 1 - 3 (Begin pumping)					2	43	42	60	58	15.5	13.4	60	0	0		
									3	37	36	67	64	16.0	12.5	67	1	0		
				Test 4 - 5 (Mid pumped)					4	54	52	50	48	13.8	14.4	49	1	0		

Table 13 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 3 - 5, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. Catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Vol.	Roe Yield % Adj. vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd. out.	Juv. or Immat.
									5	54	49	57	51	15.0	14.7	56	1	0		
				Test 6 - 7 (End pumped)					6	57	50	56	50	13.6	13.6	55	0	1		
									7	48	47	55	53	13.0	12.3	52	3	0		
052 (5	25	Kitkatla N.W. Side	06/04/86	1640		35				Water haul										
052 (5)	26	Kitkatla N.W. Side	07/04/86	0740	70	30				Water haul										
052 (5)	27	Kitkatla N.W. Side	07/04/86 Charter payment	1100	600	40	25	6.5	1	53	50	52	50	14.5	14.5	52	0	0		
				Test 1 - 2 (Begin pumping)					2	62	50	61	50	14.3	14.3	61	0	0		
				Test 3 - 4 (Mid pumped)					3	61	55	49	45	12.8	14.2	49	0	0		
									4	53	51	51	49	13.8	14.1	51	0	0		
				Test 5 - 6 (End pumped)					5	66	57	49	43	12.3	14.3	49	0	0		
									6	66	61	43	39	11.3	14.5	43	0	0		
042 (4)	28	Big Bay	31/03/86	1230		2000	1.5		1	47	49	49	51	12.0	11.8	44	4	1		
		Gillnet sample (vessel "Prospect Point")							2	43	44	55	56	14.5	12.9	54	1	0		

Table 14. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 3 - 5, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
033 (3)	1	Haida Bay	20/03/86	1405	1			1	1	1	1	3	10	20	30	20	9	4				100	21.3	18.5	4
033 (3)	2	Haida Bay	20/03/86	1615	2	Sample not representative																			
032 (3)	3	Union Inlet	20/03/86	1725	3				1			2	10	14	34	23	15	1				100	21.6	18.5	2
033 (3)	4	Haida Bay	21/03/86	1815	4							1	5	14	32	31	14	2				99	21.9	18.5	1
032 (3)	5	Hogan Island	22/03/86	0945		Water haul																			
032 (3)	6	Hogan Island	22/03/86	1728	5							3	4	20	38	23	10					98	21.6	18.5	0
033 (3)	7	Stumaun Bay	23/03/86	0634	6								4	11	33	36	11	3	1			99	22.0	18.5	0
042 (4)	8	Pearl Harbour	24/03/86	1032	7							2	4	13	36	33	9	3				100	21.8	18.5	1
033 (3)	9	Stumaun Bay	24/03/86	1955	8					1		10	15	35	27	9	1					98	21.6	18.5	1
042 (4)	10	Pearl Harbour	25/03/86	0915		Water haul																			
042 (4)	11	Pearl Harbour	25/03/86	1009	9						1	3	5	17	40	23	9		1	1		100	21.6	18.5	2
042 (4)	12	Pearl Harbour	26/03/86	0625	10								3	17	37	28	10	4	1			100	21.9	18.5	0
033 (3)	13	Cunningham Pass	26/03/86	0850	11							3	15	21	31	26	6					102	21.3	18.5	1
033 (3)	14	Stumaun Bay	26/03/86	1807	12					1	2	7	13	21	24	18	12	1	1			100	21.2	18.5	5
042 (4)	15	Pearl Harbour	27/03/86	0712	13							2	9	13	33	30	9	2	2			100	212.8	18.5	0

Table 14 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 3 - 5, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
042 (4)	16	Pearl Harbour	27/03/86	1635	14	No information																			
033 (3)	17	Cunningham Pass	28/03/86	0750	15						1	3	9	22	34	28	3					100	21.3	18.5	1
033 (3)	18	Head of Stumaun Bay	28/03/86	1050	16					1	3	1	3	14	30	29	14	5				100	21.8	18.5	4
042 (4)	19	Big Bay	29/03/86	0937	17								6	7	28	31	19	7	1			99	22.3	18.5	0
033 (3)	20	Stumaun Bay	31/03/86	2030	18	1	1	5	6	5	13	13	16	14	13	7	3					97	19.1	18.5	39
052 (5)	21	Kitkatla	05/04/86	0641	19	Charter payment					No information														
052 (5)	22	Kitkatla West Side	06/04/86	0659		Water haul																			
052 (5)	23	Kitkatla West Side	06/04/86	1135		Juvenile herring (average size 8.6)																			
052 (5)	24	Kitkatla N.W. Side	06/04/86	1250	20	Charter payment					4	2	7	16	30	21	17	2				99	21.6	18.5	4
052 (5)	25	Kitkatla N.W. Side	06/04/86	1640		Water haul																			
052 (5)	26	Kitkatla N.W. Side	07/04/86	0740		Water haul																			
052 (5)	27	Kitkatla N.W. Side	07/04/86	1100	21	Charter payment				2	2	13	13	15	25	21	10	3				104	21.9	18.5	7
042 (4)	28	Big Bay	31/03/86	1230		No information																			
		Gillnet sample (vessel "Prospect Point")																							

Table 15. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 - 8, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or Immat.
					In loc.	Set on	Est. Catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
074 (7)	1	Boddy Narrows	01/03/86	1907	600/700	300	100	6.0	1	38	45	46	55	0	0	0	0	46		
074 (7)	2	Dundivan Inlet	01/03/86	2140	1500/2000	1500/2000	150/200	5.9	1	51	46	60	54	0	0	0	0	60		3
071 (7)	3	Mouth of Return Channel	02/03/86	0612	300/400	75/80	30/40	5.6	1	70	56	54	44	0	0	0	0	54		199
074 (7)	4	West Waskasiu Pass	02/03/86	1944	75/100	30/40	3/5	6.0	1	41	46	48	54	0	0	0	1	47		
074 (7)	5	N.E. Thompson Bay	03/03/86	1855	400/300	100	10	6.0	1	48	55	39	45	0	0	0	1	38		
067 (6)	6	Kitasu Bay	04/03/86	1550		200		6.3		Water haul										
067 (6)	7	Kitasu Bay	04/03/86	1755		500	25	6.1	1	60	53	54	47	0	0	0	0	54		5
085 (8)	8	Kwakshua Channel	07/03/86	2015	3000		250	6.9	1	63	51	61	49	0	0	0	0	61		
074 (7)	9	Boddy Narrows	08/03/86	1945		75	30	6.4	1	56	59	39	41	0	0	0	0	39		40
074 (7)	10	E. Waskasiu Pass	09/03/86	1945	2000/2500	SKIMMER	200	6.3	1	57	51	55	49	0	0	0	0	55		
074 (7)	11	Christiansen Pt.	10/03/86	1315						Water haul										

Table 15 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 - 8, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. Catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Vol.	Roe Yield %: Adj. vol.	Roe Grade (Pcs): #1	Roe Grade (Pcs): #2	Roe Grade (Pcs): #3	Spnd. out.	Juv. or immat.
074 (7)	12	Dundivan Inlet	10/03/86	1910			200		1	37	39	57	61	0	0	0	0	57		
074 (7)	13	Dundivan Inlet	15/03/86	0520	4000	500	200	6.3	1	57	43	76	57	0	0	0	0	57		50
074 (7)	14	Christiansen Pt.	15/03/86	0930	1000 / 1500	75 / 100	75 / 100	6.4	1	72	49	75	51	0	0	0	0	75		55
072 (7)	15	Barry Inlet	15/03/86	1900		100	25	6.9	1	49	49	50	51	0	0	0	3	47		1
074 (7)	16	Dundivan Inlet	15/03/86	2050	1000			6.7	1	56	50	56	50	0	0	1	1	54		2
085 (8)	17	Kwakshua Channel	17/03/86	1945				7.1		Water haul										
085 (8)	18	Kwakshua Channel	17/03/86	2015		200 / 300	40 / 50	7.1	1	66	49	68	51	3.0	2.9	16	1	51		
									2	67	53	59	47	6.0	6.4	6	7	46		
071 (7)	19	E. Higgins Pass	18/03/86	2145	1500 / 2000	SKIMMER	25	6.7	1	50	45	60	55	1.0	0.9	7	8	45		2
									2	58	54	49	46	0	0	2	7	40		
074 (7)	20	Dundivan Inlet	19/03/86	2115	2000	1500	300	6.8	1	45	47	51	53	0	0	1	2	48		1
									2	41	44	52	56	0	0	2	5	45		
072 (7)	21	Powell Anchorage	20/03/86	0805		100	100	6.4	1	37	43	50	57	8.0	7.0	24	5	21		
									2	30	34	58	66	7.0	5.3	26	11	21		
									3	29	35	54	65	7.0	5.4	24	4	26		

Table 15 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 - 8, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. Catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Vol.	Roe Yield %: Adj. vol.	Roe Grade (Pcs): #1	Roe Grade (Pcs): #2	Roe Grade (Pcs): #3	Spnd. out.	Juv. or Immat.
072 (7)	22	Fisher Point	21/03/86	0710		400 / 500		6.4		Water haul										
071 (7)	23	Matthieson Channel	21/03/86	1655	1500	400	5	6.9	1	38	46	45	54	4.0	3.7	12	8	25		
									2	38	39	60	61	4.5	3.7	20	3	37		
071 (7)	24	E. Higgins Pass	21/03/86	2035	200 / 300	SKIMMER	50	6.8	1	51	50	52	50	6.0	6.0	23	6	23		1
									2	54	49	56	51	6.0	5.9	26	6	24		
									3	42	42	57	58	6.0	5.2	26	6	25		3
085 (8)	25	Kwakshua Channel	23/03/86	0555	2000	50 / 60	50 / 60	7.1	1	60	43	78	57	10.5	9.2	53	5	20		
									2	69	55	56	45	8.0	8.9	39	2	15		
									3	77	60	52	40	7.0	8.8	34	4	14		
074 (7)	26	Kildidt Sound (Claire Island)	23/02/86	1745		30 / 40	30 / 40	7.3		Juvenile herring										
074 (7)	27	Stryker Bay	24/03/86	1150	500 / 600	400 / 500	5	7.4	1	43	48	47	52	14.0	13.5	45	0	2		
									2	39	48	43	52	13.5	13.0	39	0	4		
									3	42	48	46	52	14.5	13.9	44	0	2		
074 (7)	28	Thompson Bay	24/03/86	1805	300 / 400	300	100	7.3	1	58	56	45	44	9.0	10.2	33	3	9		
									2	42	44	53	56	12.0	10.7	46	3	4		
									3	42	43	56	57	13.0	11.4	43	5	8		
074 (7)	29	Idol Point	25/03/86	1400	1000	150	75	7.0	1	49	51	47	49	3.0	3.1	11	15	21		4
									2	49	51	47	49	6.0	6.1	23	9	15		11
									3	46	48	50	52	4.0	3.8	16	16	18		9
072 (7)	30	Powell Anchorage	26/03/86	1705	2000	100	75	7.0	1	28	32	60	68	13.0	9.6	43	9	8		
									2	42	44	53	56	14.5	12.9	46	7	0		
									3	40	42	55	58	10.5	9.1	36	13	6		

Table 15 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 - 8, 1986

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. Catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Vol.	Roe Yield % Adj. vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd. out.	Juv. or Immat.
									4	36	38	59	62	14.0	11.3	43	12	4		
									5	42	44	53	56	10.0	8.9	32	16	5		
071	31	E. Higgins Pass	28/03/86	0715	900	300	200	6.7	1	52	59	36	41	10.5	12.8	34	2	0		
(7)									2	45	49	46	51	13.0	12.7	43	3	0		
									3	44	47	49	53	14.0	13.2	48	1	0		
									4	45	50	45	50	12.0	12.0	42	1	2		
									5	54	57	41	43	12.0	14.0	39	1	1		
071	32	E. Higgins Pass	28/03/86	1920		75	4	6.8	1	55	51	52	49	3.0	3.1	14	7	31	1	
(7)									2	62	57	47	43	3.5	4.1	14	4	29		2
071	33	E. Higgins Pass	28/03/86	2130		SKIMMER	10	6.8	1	47	52	43	48	10.5	10.9	40	1	2		
(7)									2	50	53	45	47	12.0	12.8	44	0	1		
									3	34	35	63	65	15.0	11.5	56	5	2		
									4	53	54	46	46	11.5	12.5	42	1	3		
072	34	Powell Anchorage	30/03/86	0930	1000	1000	250	7.0	1	54	57	41	43	12.0	14.0	40	0	1	1	
(7)									2	46	47	51	53	12.0	11.3	47	1	3		
									3	38	44	49	56	15.5	13.8	48	0	1		
									4	48	48	53	52	14.3	13.8	47	5	1	1	
074	35	Thompson Bay	30/03/86	1950		100	50	7.4	1	48	54	41	46	12.0	13.0	38	1	2		
(7)			Charter payment						2	48	46	57	54	13.0	12.0	49	4	4		
076	36	Seafire Island	02/04/86	2000	80	SKIMMER	4/5	7.0	Juvenile herring - gonads are maturing											
(7)																				
076	37	Mustang Bay	03/04/86	0920	300/400	75/100	50	7.2	1	62	52	58	48	13.0	13.5	56	0	2		1
(7)									2	63	52	59	48	12.0	12.5	57	2	0		1
									3	61	50	60	50	13.5	13.5	59	0	1		

Table 15 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 - 8, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. Catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Vol.	Roe Yield % Adj. vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd. out.	Juv. or immat.
085 (8)	38	Kwakshua Channel	03/04/86	1135		15	15	7.8	1	74	54	62	46	12.0	13.0	58	1	3		
									2	63	50	63	50	12.5	12.5	56	3	4		7
076 (7)	39	Nalau Passage	03/04/86	1730	150	10/15	2	7.4		Set not representative										
071 (7)		E. Higgins Pass	29/03/86	1000			140		1	49	54	42	46	11.5	12.5	36	2	4		
		Seine fishery sample (Bernice C.)							2	42	46	50	54	11.5	10.6	44	1	5		
067 (6)		Kitasu Bay	02/04/86	2015	1500	400 SKIMMER	20	6.9	1	59	65	32	35	11.0	15.7	0	0	32	6	11
		Spn.-on-kelp, Fishing vessel "Sally J. Rogers"																		
067 (6)		Kitasu Bay	31/03/86			400/500	150	6.9	1	40	44	51	56	12.0	10.7	47	2	2		
		Spn.-on-kelp, Fishing vessel "Freeland"																		
067 (6)		Kitasu Bay	04/04/86	1320	1500		250lb.	7.2	1	37	42	51	58	15.5	13.4	51	0	0		
		(Osment inlet)							2	38	48	42	52	11.5	11.1	42	0	0	3	
		Spn.-on-kelp, Fishing vessel "Native Pride"							3	48	56	38	44	11.0	12.5	38	0	0	1	
067 (6)		Kitasu Bay	04/04/86	0830	1500		400lb.	7.3	1	47	52	43	48	12.0	12.5	42	1	0		
		(Osment inlet)							2	50	54	42	46	11.8	12.8	42	0	0		
		Spn.-on-kelp, Fishing vessel "Native Pride"							3	35	41	51	59	14.0	11.9	50	0	1		
067 (6)		Kitasu Bay	04/04/86	0930	1500		150lb.	7.4	1	41	49	43	51	13.0	12.7	43	0	0	1	
		(Persons Anchorage)							2	37	47	42	53	13.0	12.3	42	0	0	1	
		Spn.-on-kelp, Fishing vessel "Native Pride"																		

Table 15 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 - 8, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. Catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Vol.	Roe Yield % Adj. vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd. out.	Juv. or Immat.
067		Kitasu Bay	02/04/86	1200	1500		300 lb	7.2	1	51	52	46	47	13.5	14.4	46	0	0		
(6)		(Parsons Anchorage)							2	43	48	47	52	13.0	12.5	45	2	0		
	Spn.-on-kelp, Fishing vessel "Native Pride"								3	45	51	44	49	13.0	13.3	43	1	0		
067		Kitasu Bay	04/04/86	1400	1500		250 lb	7.3	1	48	55	39	45	11.0	12.2	39	0	0		
(6)		(Parsons Anchorage)							2	51	61	33	39	10.5	13.5	33	0	0		
	Spn.-on-kelp, Fishing vessel "Native Price"								3	56	66	29	34	8.0	11.8	29	0	0		

Table 16. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 - 8, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
074 (7)	1	Boddy Narrows	01/03/86	1907	1							2	2	7	22	21	27	17	2			100	22.7	18.5	0
074 (7)	2	Dundivan Inlet	01/03/86	2140	2				1	7	7	9	5	22	15	15	10	7	2			100	20.9	18.5	18
071 (7)	3	Mouth of Return Channel	02/03/86	0612	3 10/11 1 11/12 1	4	11	22	21	19	16	4	1									100	15.5	18.5	98
074 (7)	4	West Waskesiu Pass	02/03/86	1944	4						3	1	5	12	37	17	12	9	4			100	22.0	18.5	3
074 (7)	5	NE. Thompson Bay	03/03/86	1855	5								6	7	19	23	16	10	1			82	22.4	18.5	0
067 (6)	6	Kitasu Bay	04/03/86	1550				Water haul																	
067 (6)	7	Kitasu Bay	04/03/86	1755	6						5	1	10	19	30	23	9	2				99	21.3	18.5	5
085 (8)	8	Kwakshua Channel	07/03/86	2015	7						7	8	20	25	23	11	4	1				99	20.5	18.5	12
074 (7)	9	Boddy Narrows	08/03/86	1945	8			6	17	16	6	3		5	8	17	10	10	2			100	19.6	18.5	48
074 (7)	10	East Waskesiu Pass	09/03/86	1945	9						3	3	9	20	35	17	8	5				100	21.4	18.5	5
074 (7)	11	Christiansen Pt.	10/03/86	1315				Water haul																	
074 (7)	12	Dundivan Inlet	10/03/86	1910	10					1	2		5	11	25	20	18	13	3			98	22.2	18.5	3
074 (7)	13	Dundivan Inlet	15/03/86	0520	11			2	8	25	16	13	5	8	9	5	6	3				100	18.7	18.5	62
074 (7)	14	Christiansen Pt.	15/03/86	0930	12			1	9	28	26	19	7	8	2							100	17.7	18.5	75
072 (7)	15	Berry Inlet	15/03/86	1900	13					2	3	4	8	13	32	18	12	5				97	21.4	18.5	7

Table 16 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 - 8, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
074 (7)	16	Dundivan Inlet	15/03/86	2050	14				2	3	5	5	12	19	24	19	8	3				100	20.9	18.5	11
085 (8)	17	Kwakshua Channel	17/03/86	1945				Water haul																	
085 (8)	18	Kwakshua Channel	17/03/86	2015	15					4	3	17	31	18	15	9		1				98	20.0	18.5	16
071 (7)	19	E. Higgins Pass	18/03/86	2145	16				2		2	2	11	32	26	20	1	4			1	101	21.1	18.5	4
074 (7)	20	Dundivan Inlet	19/03/86	2115	17					1	2	6	2	13	23	20	23	8	2			100	22.0	18.5	4
072 (7)	21	Powell Anchorage	20/03/86	0805	18					3	1	3	5	17	22	16	17	16				100	22.0	18.5	4
072 (7)	22	Fisher Point	21/03/86	0710				Water haul																	
071 (7)	23	Mathieson Channel	21/03/86	1655	19						1		3	15	33	24	11	12	1			100	22.1	18.5	1
071 (7)	24	E. Higgins Pass	21/03/86	2035	20			1				2	12	33	25	15	9	2	1			100	21.2	18.5	2
085 (8)	25	Kwakshua Channel	23/03/86	0555	21					2	6	11	27	23	16	13	2					100	20.2	18.5	10
074 (7)	26	Klidlt Sound Claire Island	23/03/86	1745	22	1	15	38	39	6												99	15.8	18.5	100
074 (7)	27	Stryker Bay	24/03/86	1150	23					1	5	1	8	11	21	20	21	12	2			102	22.0	18.5	6
074 (7)	28	Thompson Bay	24/03/86	1805	24				1	2	4	3	10	21	30	13	11	6				101	21.2	18.5	9
074 (7)	29	Idol Point	25/03/86	1400	25					5	9	12	9	11	22	12	11	6	3			100	20.9	18.5	21
072 (7)	30	Powell Anchorage	26/03/86	1705	26						1	4	5	16	33	20	16	5	2			102	21.8	18.5	4

Table 16 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 - 8, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
071 (7)	31	E. Higgins Pass	28/03/86	0715	27								10	20	21	27	17	5	1			101	21.9	18.5	0
071 (7)	32	E. Higgins Pass	28/03/86	1920	28					1	1	1	10	29	31	17	6	4				100	21.3	18.5	3
071 (7)	33	E. Higgins Pass	28/03/86	2130	29						2	1	12	21	24	20	14	6				100	21.6	18.5	2
072 (7)	34	Powell Anchorage	30/03/86	0930	30						9	9	8	14	25	23	10	2	1			101	21.1	18.5	14
074 (7)	35	Thompson Bay	30/03/86	1950	31	Charter payment					1	8	15	19	14	9	6					72	20.7	18.5	8
076 (7)	36	Seafire Island	02/04/86	2000	32	9	17	16	41	14	2	1				Juvenile herring						100	15.9	18.5	99
076 (7)	37	Mustang Bay	03/04/86	0920	33					1	6	13	20	23	24	10	3					100	20.4	18.5	11
085 (8)	38	Kwakshua channel	03/04/86	1135	34				1	4	3	13	25	24	15	7	5					97	20.1	18.5	12
076 (7)	39	Nalau Passage	03/04/86	1730		Sample not representative																			
071 (7)		E. Higgins Pass	29/03/86	1000		No information																			
		Seine fishery sample (Bernice C.)																							
067 (6)		Kitasu Bay	02/03/86	2015																					
		Spn.-on-kelp, Fishing vessel "Sally J. Rogers"																							
067 (6)		Kitasu Bay	31/03/86																						
		Spn.-on-kelp, Fishing vessel "Freeland"																							
067 (6)		Kitasu Bay (Osment Inlet)	04/04/86	1320																					
		Spn.-on-kelp, Fishing vessel "Native Pride"																							

Table 16 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 - 8, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
067		Kitasu Bay	04/04/86	0830																					
(6)		(Osment Inlet)																							
		Spn.-on-kelp, Fishing vessel "Native Pride"																							
067		Kitasu Bay	04/04/86	0930																					
(6)		(Parsons Anchorage)																							
		Spn.-on-kelp, Fishing vessel "Native Pride"																							
067		Kitasu Bay	06/04/86	1200																					
(6)		(Osment Inlet)																							
		Spn.-on-kelp, Fishing vessel "Native Pride"																							
067		Kitasu Bay	04/04/86	1400																					
(6)		(Parsons Anchorage)																							
		Spn.-on-kelp, Fishing vessel "Native Pride"																							

Table 17. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "MARINE STAR", STAT. AREAS 6 & 7, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. Catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Vol.	Roe Yield %: Adj. vol.	Roe Grade (Pcs): #1	Roe Grade (Pcs): #2	Roe Grade (Pcs): #3	Spnd. out.	Juv. or Immat.
074 (7)	1	Dundivan Inlet	07/03/86	1910	2500/3000	300/400	300/400	6.4	1	43	48	46	52	0	0	0	0	46		
071 (7)	2	E. Higgins Pass	08/03/86	2030	150/200	50/60	15/20	6.5	1	55	53	49	47	0	0	0	0	49		2
067 (6)	3	Kitasu Bay	09/03/86	2145	400	25	25	6.5	1	30	33	60	67	0	0	1	0	59		
067 (6)	4	Wilby Point	10/03/86	1010	400	200		11.2		Water haul										
067 (6)	5	Wilby Point	10/03/86	1259	1500	400	200/250	6.5	1	49	49	52	51	0	0	0	0	52		1
071 (7)	6	E. Higgins Pass	12/03/86	1300	1200/1500	200/300				Water haul										
071 (7)	7	E. Higgins Pass	12/03/86	1411	1200/1500	200/300	25/30	6.5	1	59	60	40	40	0	0	2	1	37		
									2	52	50	52	50	0	0	2	1	49		2
074 (7)	8	Stryker Bay	13/03/86	2150	500/600	150/200	150/200	7.0	1	39	40	59	60	0.5	0.4	5	12	42		
									2	39	39	61	61	2.0	1.6	13	8	40		2
074 (7)	9	Waskesiu Pass	14/03/86	1956	1800	300	300	7.0	1	45	47	50	53	0	0	0	1	49		1
									2	54	55	44	45	0	0	0	2	42		
071 (7)	10	E. Higgins Pass	15/03/86	1850	1500	300/400	200	6.5	1	54	49	57	51	0.5	0.5	5	5	47		2
									2	49	43	64	57	0.5	0.4	5	3	56		2
067 (6)	11	Kitasu Bay	16/03/86	1423	1000	150/200	10	7.0	1	64	60	42	40	0	0	2	2	38		1
									2	56	53	49	47	1.0	1.1	7	2	40		

Table 17(cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "MARINE STAR", STAT. AREAS 6 & 7, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. Catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Vol.	Roe Yield % Adj. vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd. out.	Juv. or Immat.
067 (6)	12	Marvin Island	16/03/86	1812	2000	300	150	7.0	1	46	44	58	56	0.5	0.5	4	4	50		1
									2	53	49	55	51	0.5	0.5	4	4	47		
074 (7)	13	Stryker Bay	20/03/86	0733	300/350	150	75	7.0	1	43	46	50	54	10.0	9.3	34	4	12		
									2	38	42	53	58	10.5	9.1	33	9	11		
074 (7)	14	W. of Dundivan Inlet	22/03/86	1010					Water haul											
074 (7)	15	Idol Point	22/03/86	1105		200/250	50	7.5	1	42	40	64	60	3.5	2.9	15	10	39		2
									2	61	54	52	46	3.0	3.3	11	5	36		1
071 (7)	16	Spiller Inlet	22/03/86	1815		200/300	75	6.8	1	44	45	53	55	4.0	3.6	12	5	36		
									2	50	51	48	49	3.0	3.1	12	3	33		
071 (7)	17	Neekas Inlet	23/03/86	0640				6.8	Water haul											
072 (7)	18	Reid Passage	23/03/86	2010		150	10	7.3	1	49	49	51	51	10.0	9.8	33	5	13		1
									2	54	52	50	48	6.0	6.3	22	7	21		0
									3	47	46	55	54	7.5	6.9	26	6	23		2
071 (7)	19	E. Higgins Pass	23/03/86	1115					Water haul											
071 (7)	20	E. Higgins Pass	23/03/86	1945					1	55	51	53	49	8.0	8.2	35	1	17		
									2	52	50	51	50	10.0	10.0	41	2	8		1
									3	48	48	52	52	10.5	10.1	37	4	11		
071 (7)	21	E. Higgins Pass	26/03/86	1950	2000	200/300	150	7.1	1	47	45	58	55	11.5	10.5	44	1	13		
									2	51	48	56	52	10.5	10.1	39	6	11		
									3	48	45	58	55	9.5	8.6	40	5	13		3
									4	54	47	62	53	9.5	9.0	39	4	19		
									5	54	51	51	49	9.0	9.2	36	1	14		

Table 17(cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "MARINE STAR", STAT.AREAS 6 & 7, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. Catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Vol.	Roe Yield %: Adj. vol.	Roe Grade (Pcs): #1	Roe Grade (Pcs): #2	Roe Grade (Pcs): #3	Spnd. out.	Juv. or Immat.
071 (7)	22	E. Higgins Pass	27/03/86	0700	3000+	75	10	7.1	1	52	53	47	47	10.5	11.2	36	1	10		
									2	50	49	52	51	10.0	9.8	38	3	11		
									3	64	60	42	40	8.5	10.6	30	2	10		
									4	61	54	51	46	9.0	8.7	36	2	13		
									5	63	59	44	41	9.5	11.6	36	1	7		1
071 (7)	23	E. Higgins Pass	28/03/86	0955		250	125	7.1	1	45	47	51	53	11.5	10.9	43	3	5		
									2	49	49	51	51	10.0	9.8	37	4	10		
									3	57	54	48	46	10.0	10.9	41	1	6		
									4	45	45	55	55	12.3	11.2	47	5	3		
									5	45	45	56	55	12.0	10.9	46	5	5		1
071 (7)	24	E. Higgins Pass	28/03/86	2015			5	7.4	1	42	50	42	50	10.8	10.8	39	1	2		
									2	58	56	45	44	9.5	10.8	40	0	5		
									3	58	57	44	43	10.7	12.4	42	1	1		
									4	50	51	49	49	11.5	11.7	44	2	3		
									5	49	49	50	51	13.0	12.8	45	0	5		
071 (7)	25	E. Higgins Pass	29/03/86	0500					1	39	42	54	58	14.0	12.1	49	1	4		
									2	50	54	43	46	11.0	12.0	38	1	4		
									3	57	57	43	43	10.5	12.2	41	0	2		
074 (7)	26	Stryker Bay Charter payment	30/03/86	1140		100	.25	7.6	1	54	53	48	47	12.8	13.6	44	0	4		
									2	61	59	42	41	10.5	12.8	39	0	3		
									3	48	44	61	56	14.3	12.8	51	1	9		
				Test 4	(Begin pumping)				4	48	48	53	52	13.5	13.0	47	2	4		
				Test 5	(Mid pumped)				5	58	54	49	46	12.5	13.6	45	2	2	1	
				Test 6	(End pumped)				6	No sex ratio				14.0			1	3		
074 (7)	27	Stryker Bay Charter payment	30/03/86	1310		800	400	7.6	1	43	49	45	51	14.5	14.2	42	0	3		
									2	43	41	61	59	15.0	12.7	52	1	8		

Table 17(cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "MARINE STAR", STAT. AREAS 6 & 7, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. Catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Vol.	Roe Yield % Adj. vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd. out.	Juv. or Immat.
									3	49	51	47	49	12.0	12.2	43	0	4		
									4	42	48	46	52	13.0	12.5	43	1	2		
074	28	East Waskaslu	30/03/86	1945		SKIMMER	15		1	39	42	54	58	15.0	12.9	54	0	0		
(7)							20		2	55	57	41	43	14.0	16.3	39	0	2		
									3	47	47	52	53	15.5	14.6	51	0	1		
067	29	Kitasu Bay	31/03/86	2000	1200	150	150	7.1	1	35	38	58	62	16.0	12.9	54	0	4		
(6)		Sample from "Salli J. Rogers"			1500	200	200		2	45	49	47	51	12.0	11.8	44	1	2		1
									3	46	47	52	53	12.0	11.3	46	2	4		
									4	48	55	40	45	12.0	13.3	37	0	3		

Table 18. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "MARINE STAR", STAT. AREA 6 & 7, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
074 (7)	1	Dundivan Inlet	07/03/86	1910	1								1	8	16	23	33	14	3	1		99	22.9	18.5	0
071 (7)	2	E. Higgins Pass	08/03/86	2030	2					2	0	4	2	33	26	25	8					100	21.3	18.5	3
067 (6)	3	Kitasu Bay	09/03/86	2145	3						1	0	4	19	31	24	15	6				100	21.9	18.5	1
067 (6)	4	Wilby Point	10/03/86	1010				Water haul																	
067 (6)	5	Wilby Point	10/03/86	1259	4						1	1	6	13	23	30	22	3	1			100	22.1	18.5	2
071 (7)	6	E. Higgins Pass	12/03/86	1300				Water haul																	
071 (7	7	E. Higgins Pass	12/03/86	1411	5					1	0	4	5	24	41	16	7	2				100	21.4	18.5	1
074 (7)	8	Stryker Bay	13/03/86	2150	6					1	3	4	10	14	19	17	24	7	1			100	21.8	18.5	4
074 (7)	9	Waskaslu Pass	14/03/86	1956	7	1	0	0	0	4	4	9	17	23	17	15	7	3				100	21.6	18.5	7
071 (7)	10	E. Higgins Pass	15/03/86	1850	8		1	0	1	1	1	15	26	32	17	3	3					100	21.1	18.5	3
067 (6)	11	Kitasu Bay	16/03/86	1423	9					1	3	2	6	18	29	24	11	3	3			100	21.6	18.5	6
067 (6)	12	Marvin Island	16/03/86	1812	10						2	1	10	23	28	18	13	4	0	0	28/29 1	100	21.6	18.5	3
074 (7)	13	Stryker Bay	20/03/86	0733	11					1	2	6	11	15	15	17	14	13	5	1		100	21.9	18.5	5
074 (7)	14	W. of Dundivan Inlet	22/03/86	1010				Water haul																	
074 (7)	15	Idol Point	22/03/86	1105	12					2	4	8	11	20	27	15	8	6	3			104	21.2	18.5	10
071 (7)	16	Spiller Inlet	22/03/86	1815	13						4	5	5	15	21	32	15	7	1			105	21.8	18.5	6

Table 18 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "MARINE STAR", STAT. AREA 6 & 7, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
071 (7)	17	Neekas Inlet	23/03/86	0640	14								3	25	21	0	1	1				51	21.0	18.5	0
072 (7)	18	Reid Passage	23/03/86	2010	15					1	1	0	6	17	25	20	23	7	1	1		102	22.1	18.5	2
071 (7)	19	E. Higgins Pass	23/03/86	1115		Water haul																			
071 (7)	20	E. Higgins Pass	23/03/86	1945	16							1	7	16	30	22	16	4				96	21.8	18.5	1
071 (7)	21	E. Higgins Pass	26/03/86	1950	17			1	0	1	0	0	10	24	23	25	8	4				96	21.5	18.5	2
071 (7)	22	E. Higgins Pass	27/03/86	0700	18						1	1	4	20	29	31	11	5				102	21.8	18.5	2
071 (7)	23	E. Higgins Pass	28/03/86	0955	19						1	0	13	27	21	25	16	8				111	21.7	18.5	1
071 (7)	24	E. Higgins Pass	28/03/86	2015							1	1	7	23	20	21	17	7	3			100	21.9	18.5	1
071 (7)	25	E. Higgins Pass	29/03/86	0500		No information																			
074 (7)	26	Stryker Bay	30/03/86	1140		Charter payment		1		1	4	10	15	16	19	14	15	7				102	21.1	18.5	11
074 (7)	27	Stryker Bay	30/03/86	1310	20	Charter payment					3	1	5	8	13	8	9	4				52	21.5	18.5	8
074 (7)	28	E. of Ubskesul Pass Sample from "Salli J. Rogers"	30/03/86	1945	21					1	2	6	7	20	23	28	16	1	3			107	21.6	18.5	6
067 (6)	29	Kitasu Bay Sample from "Salli J. Rogers"	31/03/86	2000	22								6	12	20	32	25	5				100	22.2	18.5	0

Table 19. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW NO.1", STAT. AREAS 13 - 17, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or Immat.
					In loc.	Set on	Est. Catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
172 (17)	1	Imperieuse Rock	21/02/86	0600	600	400	50	6.5	1	45	49	47	51	0	0	0	0	47		2
									2	43	44	54	56	0	0	0	0	54		
141 (14)	2	Craig Bay	21/02/86	1432		40/50	15	6.5	1	35	30	81	70	0	0	0	0	81		7
161 (16)	3	N.W. of Favado Point	22/02/86	0907	500	400/500	300	6.5	1	53	56	42	44	0	0	0	2	40		1
									2	44	47	50	53	0	0	0	2	48		
152 (15)	4	Westview Ferry Dock	22/02/86	1115		200/300	100	6.4	1	37	39	57	61	0	0	0	1	56		
									2	45	48	48	52	0	0	0	0	48		
152 (15)	5	Westview Ferry Dock	22/02/86	1840	500	25	10	6.2	1	35	35	64	65	0	0	0	0	64		2
									2	32	35	59	65	0	0	0	0	59		7
152 (15)	6	Mill Hulks	24/02/86	0604		200	65	6.4	1	35	38	58	62	0	0	0	0	57		50
									2	47	49	48	51	0	0	0	0	48		31
161 (16)	7	Beach Gardens	24/02/86	1117		300/400		6.6		Set not representative										
137 (13)	8	Harlot Bay	25/02/86	1900	500	400/500	5	6.8	1	67	55	54	45	0	0	0	0	54		2
									2	70	59	48	41	0	0	0	0	48		1
137 (13)	9	Village Bay	25/02/86	2105		600	40	7.0	1	62	56	48	44	0	0	0	0	48		55
137 (13)	10	Rebecca Spit	26/02/86	0525	800/900	200	10	6.6	1	60	51	57	49	0	0	0	0	57		2
162 (16)	11	Myrtle Point	26/02/86	1543		250		6.8		Water haul										

Table 19 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW NO.1", STAT. AREAS 13 - 17, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or Immat.
					In loc.	Set on	Est. Catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
162 (16)	12	Albion Point	26/02/86	1740		250	150	6.8	1	46	46	55	54	0	0	0	0	55		1
									2	52	49	54	51	0	0	0	2	52		
162 (16)	13	W. of Grief Pt.	27/02/86	0530	2000	1000	200	7.0	1	38	43	51	57	0	0	0	2	49		
									2	46	46	54	54	0	0	0	1	53		
142 (14)	14	Shingle Spit	27/02/86	1410		300	?	7.5	1	57	54	48	46	0	0	0	0	48		
142 (14)	15	W. of Shingle Spit	27/02/86	1610		300	50	7.5	1	36	41	51	59	0	0	0	0	51		
									2	42	46	50	54	0	0	0	2	48		3
142 (14)	16	Komas Bluff	28/02/86	0710		800	0			Water haul										
142 (14)	17	Komas Bluff	28/02/86	0823		800	200	8.0	1	51	52	47	48	0	0	0	4	43		4
									2	49	49	50	51	0	0	0	6	44		1
162 (16)	18	1/4 S. Myrtle Rock	02/03/86	0720	2000+	300	100	6.8	1	58	53	52	47	0	0	0	2	50		2
162 (16)	19	3/4 S. Grief Pt.	02/03/86	1000		400	0	6.8		Set not representative										
162 (16)	20	1/2 NW. Grief Pt.	02/02/86	1530	3000+	400	300	7.4	1	44	47	50	53	0	0	2	1	47		1
									2	48	48	51	52	0	0	0	7	44		1
152 (15)	21	1/4 S. of Hulks	03/03/86	0620	800	150	40	7.2		Water haul										
137 (13)	22	3/4 E. Rebecca Spit	04/03/86	0550	1500	SKIMMER	15	7.5	1	60	51	57	49	0	0	0	3	54		2
									2	73	61	46	39	0	0	1	2	43		4

Table 19 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW NO.1", STAT. AREAS 13 - 17, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or Immat.
					In loc.	Set on	Est. Catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
162 (16)	23	1-1/4 SW. Myrtle Rock	04/03/86	1245	2000+	350	7	7.5	1	55	50	55	50	0	0	2	5	48		1
									2	48	45	58	55	1.0	0.9	4	5	49		7
152 (15)	24	1-1/2 E. Westview	04/03/86	1445		400	250	7.6	1	48	44	61	56	1.1	1.0	5	2	54		3
						500			2	51	48	56	52	2.1	2.0	9	7	40		
152 (15)	25	Atrevida Reef	05/03/86	0530	700	SKIMMER	15	7.5	1	50	52	47	48	2.7	2.8	9	7	31		1
									2	45	46	53	54	3.5	3.2	7	7	6		3
									3	53	52	48	48	2.4	2.5	31	32	32		2
142 (14)	26	W. Sandy Island	05/03/86	1845		250	50	7.4	1	43	48	46	52	7.3	7.0	31	3	12		1
									2	33	35	61	65	10.7	8.2	43	9	9		1
									3	42	46	50	54	8.6	8.0	36	2	12		
142 (14)	27	Gartley Point	05/03/86	2045	10000	150	60	7.6	1	44	51	43	49	9.3	9.5	34	3	6		
									2	40	46	47	54	8.7	8.1	35	1	11		
									3	44	52	41	48	7.9	8.2	31	3	7		1
142 (14)	28	Deep Bay	06/03/86	1940	600	500	100	7.8	1	55	57	42	43	4.0	4.7	14	6	22		3
									2	57	56	45	44	2.9	3.3	11	6	28		
									3	52	51	50	49	3.7	3.8	17	7	26		
142 (14)	29	Sandy Island	07/03/86	2115		SKIMMER	500	7.6		Water haul										
142 (14)	30	Sandy Island	08/03/86	0550		80	5	7.6	1	41	46	48	54	8.4	7.8	33	2	13		2
									2	46	47	51	53	7.9	7.5	35	6	10		2
									3	59	64	33	36	5.9	8.2	22	1	10		

Table 19 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW NO.1", STAT. AREAS 13 - 17, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. Catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Wt.	Roe Yield %: Adj. wt.	Roe Grade (Pcs): #1	Roe Grade (Pcs): #2	Roe Grade (Pcs): #3	Spnd. out.	Juv. or immat.
142 (14)	31	SW. of Chrome	08/03/86	1330	2500+	SKIMMER	50	7.8	1	63	65	34	35	6.9	9.9	29	1	4		
									2	46	51	44	49	7.7	7.9	33	6	5		1
									3	62	63	36	37	6.6	8.9	30	1	5		2
									4	51	52	48	48	8.7	9.1	38	3	7		
									5	46	50	46	50	8.1	8.1	31	6	9		
142 (14)	32	W. Chrome I.	08/03/86	2140	5000+	5000+	50	7.6	1	46	48	49	52	10.4	10.0	44	0	5		1
									2	43	46	51	54	11.2	10.4	46	2	3		
									3	41	44	53	56	10.9	9.7	50	0	3		
									4	40	44	51	56	11.8	10.5	47	0	4		1
									5	45	47	51	53	9.9	9.3	44	2	5		
142 (14)	33	E. Chrome I. Charter payment	09/03/86	0005	1500	200	80	7.7	1	45	49	47	51	11.3	11.1	45	0	2		1
									2	41	45	51	55	12.5	11.4	44	2	5		
									3	49	53	44	47	10.7	11.4	39	1	4		
									4	36	40	55	60	12.1	10.1	44	2	9		
									5	49	52	46	48	9.3	9.7	38	3	5		1
				Test 6 (Begin pumping)					6	37	42	52	58	11.3	9.7	48	0	4		
				Test 7 (Mid pumped))					7	34	38	55	62	12.1	9.8	49	1	5		
				Test 8 (End pumped)					8	43	49	45	51	10.1	9.9	40	3	2		
142 (14)	34	Chrome Island	10/03/86	1545	1500	300	60	7.8	1	58	56	45	44	7.7	8.8	36	2	7		4
									2	56	57	43	43	8.8	10.2	35	1	7		3
									3	65	61	42	39	8.7	11.2	38	0	4		
142 (14)	35	Norris Rock Charter Payment	10/03/86	1800	2000	450	27	7.8	1	51	54	44	46	10.2	11.1	39	1	4	2	
									2	58	58	42	42	8.9	10.6	37	1	4	1	
									3	48	51	47	49	9.4	9.6	37	1	9		
									4	43	45	52	55	11.4	10.4	47	3	2		
									5	44	41	63	59	12.2	10.3	53	5	5		
				Test 6 (Begin pumping)					6	57	59	40	41	9.7	11.8	37	1	2		

Table 19 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW NO.1", STAT. AREAS 13 - 17, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. Catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Wt.	Roe Yield % Adj. wt.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd. out.	Juv. or Immat.
				Test 7 (Mid pumped)					7	56	57	43	43	10.6	12.3	40	1	2		
				Test 8 (End pumped)					8	52	53	46	47	9.1	9.7	38	2	6	1	
172 (17)	36	Harmac	11/03/86	1845			0	8.2		Set not representative										
172 (17)	37	Harmac	11/03/86	2215	12000	12000	50	8.2		Set not representative										
172 (17	38	Harmac	11/03/86	2245	12000+	12000	60	8.1	1	72	62	44	38	2.5	3.3	12	5	27		
173 (17)	39	DeCoursey Group	12/03/86	1830	2000	40	40	8.4	1	53	54	45	46	9.0	9.8	36	4	5		
									2	54	52	50	48	9.3	9.7	40	4	6		
									3	63	61	40	39	7.1	9.1	28	4	8		
173 (17)	40	Boat Harbour	12/03/86	2000	2000	50	20	8.4	1	53	54	46	46	9.6	10.4	35	6	5		
									2	55	56	43	44	8.4	9.6	35	3	5		
									3	54	55	44	45	8.8	9.8	39	3	2		1
171 (17)	41	Porlier Pass	13/03/86	0545	7000 / 8000		150	7.9	1	58	51	55	49	5.6	5.7	26	7	22		2
									2	52	48	57	52	5.5	5.3	27	3	27		1
									3	50	47	57	53	5.8	5.5	30	7	20		
173 (17)	42	Pylades Channel	14/03/86	1900	300	25	7 / 8	8.5	1	58	55	47	45	7.1	7.9	31	7	9		1
									2	56	57	43	43	8.4	9.8	36	1	6		1
									3	59	55	48	45	6.9	7.7	33	9	6		
173 (17)	43	Stuart Channel	15/03/86	0600	2000	200	60	8.2	1	55	52	50	48	9.9	10.3	43	3	4	1	1
									2	59	55	49	45	9.2	10.2	44	3	2		
									3	51	48	56	52	11.9	11.4	55	1	0		

Table 19 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW NO.1", STAT. AREAS 13 - 17, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or Immat.
					In loc.	Set on	Est. Catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
172 (17)	44	Nanoose Bay	15/03/86	1030				7.8	1	55	53	48	47	8.6	9.2	36	2	10	2	
									2	56	50	55	50	9.6	9.6	43	4	8	2	
									3	55	51	53	49	7.9	8.1	38	5	10		
173 (17)	45	Breakwater I.	16/03/86	0815				7.5		Water haul										
172 (17)	46	Nanoose Bay	16/03/86	1800	3000+	500	100+	8.0	1	52	50	53	50	9.2	9.2	42	1	10		
									2	57	53	50	47	9.6	10.2	46	1	3		3
									3	60	58	44	42	9.0	10.7	36	4	4		2

Table 20. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTVIEW NO.1", STAT. AREAS 13 - 17, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
172 (17)	1	Imperieuse Rock	21/02/86	0600	1					1	2	10	27	30	18	8	2	2				100	20.4	19.0	13
141 (14)	2	Craig Bay	21/02/86	1432	2				1	7	13	17	19	30	11	2						100	19.4	19.0	38
161 (16)	3	NW. of Favada Pt.	22/02/86	0907	3					2	3	17	34	27	13	3	1					100	19.9	19.0	22
152 (15)	4	Westview Ferry Dock	22/02/86	1115	4					1	3	12	18	22	35	8	1					100	20.5	19.0	16
152 (15)	5	Westview Ferry Dock	22/02/86	1840	5					1	9	16	27	24	19	3	1					100	19.9	19.0	26
152 (15)	6	Mill Hulks	24/02/86	0604	6	11/12 / 24			1	2	3	15	15	20	15	4	1					100	17.9	19.0	45
161 (16)	7	Beach Gardens	24/02/86	1117		Set not representative																			
137 (13)	8	Harlot Bay	25/02/86	1900	7					4	6	38	38	10	4							100	19.1	19.0	48
137 (13)	9	Village Bay	25/02/86	2105	8	1	1	2	4	11	26	31	15	9								100	18.0	19.0	76
137 (13)	10	Rebecca Spit	26/02/86	0525	9					2	20	31	24	14	6	3						100	19.1	19.0	53
162 (16)	11	Myrtle Point	26/02/86	1543		Water haul																			
162 (16)	12	Albion Point	26/02/86	1740	10					1	5	20	29	28	11	4	2					100	19.9	19.0	26
162 (16)	13	W. of Grief Pt.	27/02/86	0530	11					1	3	20	28	21	15	9	3					100	20.1	19.0	24
142 (14)	14	Shingle Spit	27/02/86	1410	12					4	3	10	21	29	18	9	6					100	20.4	19.0	17
142 (14)	15	W. of Shingle Spit	27/02/86	1610	13						2	11	20	29	22	9	6	1				100	20.6	19.0	13

Table 20 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTVIEW NO.1", STAT. AREAS 13 - 17, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12 13 / 13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
142 (14)	16	Komas Bluff	28/02/86	0710		Water haul																		
142 (14)	17	Komas Bluff	28/02/86	0823	14	1	0	6	9	18	29	19	13	1	3	1					100	19.6	19.0	34
162 (16)	18	1/4 S. Myrtle Rock	02/03/86	0720	15		1	9	12	13	32	21	9	2							99	19.3	19.0	35
162 (16)	19	3/4 S. Grief Pt.	02/03/86	1000		Set not representative																		
162 (16)	20	1/2 M. NW. Grief Point	02/03/86	1530	16		1	1	5	20	25	31	10	6	1						100	19.9	19.0	27
152 (15)	21	1/4 S. of Hulks	03/03/86	0620		Water haul																		
137 (13)	22	3/4 E. Rebecca Spit	04/03/86	0550	17		2	5	8	38	30	20	2								105	19.0	19.0	50
152 (15)	23	1-1/4 SW. Myrtle Rock	04/03/86	1245	18	1	1	4	9	27	30	20	8	1	1						102	19.3	19.0	41
152 (15)	24	1-1/2 E. Westview	04/03/86	1445	19			1	9	20	30	25	7	5	3						100	19.8	19.0	30
162 (16)	25	Atrevida Reef	05/03/86	0530	20			2	7	18	29	17	16	12	0	1					102	20.0	19.0	26
142 (14)	26	W. of Sandy I.	05/03/86	1845	21	1	0	0	0	5	13	24	38	17	2	1					101	20.0	19.0	19
142 (14)	27	W. Gartley Point	05/03/86	2045	22				4	10	20	19	26	12	8	2					101	19.8	19.0	34
142 (14)	28	Deep Bay	06/03/86	1940	23				2	13	24	28	22	7	5	2	0	1			104	19.6	19.0	38
142 (14)	29	Sandy Island	07/03/86	2115		Water haul																		
142 (14)	30	Sandy Island	08/03/86	0550	24				2	3	15	27	27	17	6	2					99	20.1	19.0	20

Table 20 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTVIEW NO.1", STAT. AREAS 13 - 17, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
142 (14)	31	SW. of Chrome	08/03/86	1330	25			1	0	0	4	20	35	24	13	3						100	19.8	19.0	25
142 (14)	32	W. Chrome Island	08/03/86	2140	26						6	17	23	25	20	8	1					100	20.1	19.0	23
142 (14)	33	1 mi. E. of Chrome Island	09/03/86	0005	27	Charter payment				1	8	22	24	25	12	4	2	1				100	19.8	19.0	31
142 (14)	34	Chrome Island	10/03/86	1545	28					3	18	23	18	23	11	1	1					98	19.3	19.0	45
142 (14)	35	Norris Rock	10/03/86	1800	29	Charter payment		2	0	8	15	27	27	12	6	2	1					100	19.9	19.0	25
172 (17)	36	Harmac	11/03/86	1845		Set not representative																			
172 (17)	37	Harmac	11/03/86	2215	30		1	0	6	19	25	20	16	11	2							100	18.1	19.0	71
172 (17)	38	Harmac	11/03/86	2245	31			2	9	14	30	20	15	8	2							100	17.9	19.0	75
173 (17)	39	DeCoursey Group	12/03/86	1830	32			2	2	6	14	23	18	17	10	4	3	1				100	19.3	19.0	47
173 (17)	40	Boat Harbour	12/03/86	2000	33			1	3	5	8	14	27	18	14	7	1	2				100	19.7	19.0	31
171 (17)	41	Porlier Pass	13/03/86	0545	34				1	7	11	23	29	17	6	2	2	1				99	19.1	19.0	42
173 (17)	42	Pylades Channel	14/03/86	1900	35			1	1	2	6	21	20	31	14	2	1	1				100	19.8	19.0	31
173 (17)	43	Stuart Channel	15/03/86	0600	36			3	4	6	12	21	16	18	6	7	3	4				100	19.4	19.0	46
172 (17)	44	Nanoose Bay	15/03/86	1030	37			5	10	11	7	22	20	13	7	3	2					100	18.6	19.0	55
173 (17)	45	Breakwater Island	16/03/86	0815		Water haul																			
172 (17)	46	Nanoose Bay	16/03/86	1800	38			2	2	9	7	19	21	25	12	2	0	1				100	19.3	19.0	39

Table 21. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "SEMIDI", STAT. AREAS 12 - 18, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or Immat.
					In loc.	Set on	Est. Catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
172 (17)	1	Northumberland Channel	01/03/86	2035	3000	50	50	7.9	1	61	50	60	50	0	0	0	0	60		3
171 (17)	2	W. of Porlier Pass	02/03/86	1905	10000	300/400	300/400	7.5	1	52	51	50	49	0	0	2	1	47		
									2	60	58	44	42	0	0	2	2	40		
182 (18)	3	Captain Passage	03/03/86	1843	450	150	150	7.5	1	33	34	63	66	4.5	3.4	23	9	31		5
									2	34	35	62	65	5.7	4.4	30	5	27		
									3	56	55	46	45	4.0	4.4	19	3	24		3
171 (17)	4	Porlier Pass	05/03/86	0522	7000/8000	50	10	7.3	1	52	52	48	48	1.0	1.0	7	2	39		5
172 (17)	5	Northumberland Channel	05/03/86	1715		100	0			Water haul										
172 (17)	6	Northumberland Channel	05/03/86	1831	8000/9000	250	250	7.8	1	73	56	57	44	9.4	10.7	2	5	50		1
142 (14)	7	Comox Bar	06/03/86	1805		300/400		7.5	1	47	53	41	47	5.3	5.6	21	15	5		
		Set not Representative - purse line broke							2	42	48	46	52	6.1	5.9	25	10	11		
									3	40	43	53	57	9.0	7.9	46	6	11		
									4	45	48	48	52	6.8	6.5	32	5	11		
142 (14)	8	Comox Harbour	06/03/86	2222		150	40	7.6	1	41	45	51	55	6.9	6.3	29	6	16		
									2	48	48	52	52	5.2	5.0	25	8	19		
									3	56	54	48	46	3.6	3.9	21	2	25		
142 (14)	9	Comox Bar	07/03/86	1127	7000	200	200	7.6	1	53	56	41	44	8.4	9.6	35	1	5		
									2	51	54	44	46	9.2	10.0	39	3	2		
									3	50	57	37	43	9.6	11.2	35	1	1		

Table 21 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "SEMIDI", STAT. AREAS 12 - 18, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or Immat.
					In loc.	Set on	Est. Catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
142 (14)	10	Denman Island	07/03/86	1639		80/100		7.6		Water haul										
142 (14)	11	Henry Bay	07/03/86	1822		80		7.6		Water haul										
142 (14)	12	S. of Sandy I.	07/03/86	1938	1500	30	30	7.6	1	48	54	41	46	10.5	11.4	38	2	1		
									2	53	59	37	41	7.7	9.4	34	0	3		
									3	44	45	53	55	10.1	9.2	45	4	4		
142 (14)	13	N. Denman Ferry Landing	08/03/86	0805	800	40	40	7.6	1	55	54	47	46	9.7	10.5	41	3	3		
									2	61	58	45	42	7.7	9.2	36	6	3		
									3	60	61	38	39	7.4	9.5	29	7	2		
									4	69	63	41	37	8.2	11.1	36	1	4		
142 (14)	14	Ship Point	08/03/86	1105	500/700	250	250	7.6	1	48	53	43	47	9.2	9.8	40	3	0		
									2	44	48	47	52	8.9	8.6	40	5	2		
									3	44	49	45	51	9.8	9.6	41	4	0		
142 (14)	15	Chrome Island	09/03/86	0205		200	200	7.6	1	37	43	49	57	9.6	8.4	41	3	5		
									2	38	44	48	56	11.2	10.0	42	3	3		
									3	41	49	43	51	10.6	10.4	38	2	3	1	
									4	46	52	42	48	11.4	11.9	41	1	0		
									5	39	44	50	56	10.1	9.0	45	4	1		
142 (14)	16	S. Chrome Island	09/03/86	0405				7.6	1	43	47	48	53	9.9	9.3	40	4	4	2	
									2	46	49	48	51	9.9	9.7	40	3	5		
									3	47	51	46	49	10.1	10.3	42	2	2		
									4	39	43	52	57	10.7	9.4	47	0	5		
									5	40	44	50	56	10.6	9.5	42	3	5		
142 (14)	17	S. Chrome Island	09/03/86	0535				7.6	1	39	44	50	56	11.2	10.0	46	4	0		
		Charter payment							2	47	51	46	49	11.0	11.2	42	1	3		
		(Begin pumping - 10.7%, Mid pumped - 8.0%, end pumped - 9%)																		

Table 21 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "SEMIDI", STAT. AREAS 12 - 18, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or immat.
					In loc.	Set on	Est. Catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
									3	44	49	45	51	10.8	10.6	40	4	1		1
									4	42	47	47	53	11.0	10.4	42	2	3		
137 (13)	18	Breton Island	12/03/86	1905	2500	50/60	2	7.8	1	109	65	59	35	2.0	2.9	22	13	24	2	7
137 (13)	19	Francisco Point	13/03/86	1705	2500	150		7.8		Water haul										
137 (13)	20	Breton Island	13/03/86		2500	300	150	7.8	1	66	57	50	43	4.6	5.4	29	5	16	4	
									2	66	57	49	43	5.9	6.9	31	4	14	2	
									3	71	61	46	39	5.9	7.6	35	1	10	5	
142 (14)	21	Lambert Channel	15/03/86	0450	4000	200	30	7.7	1	37	53	33	47	7.8	8.3	30	2	1	36	
									2	27	39	42	61	9.2	7.5	38	2	2	44	
									3	23	35	43	65	8.0	6.2	36	3	4	45	
									4	21	28	55	72	12.5	8.7	52	1	2	41	
152 (15)	22	NE. Mace Point	16/03/86	0955	1100	100	10	8.1	1	12	34	23	66	0	0	2	7	14	86	
									2	15	32	32	68	0.7	0.5	5	9	18	91	
									3	15	31	34	69	0	0	0	3	31	92	
126 (12)	23	Wakeman Sound	18/03/86	1300	1000	200	75	7.5	1	70	53	61	47	2.3	2.5	12	20	29		8
									2	58	42	79	58	2.1	1.8	16	15	48	8	22
									3	56	45	69	55	1.8	1.6	12	4	53	5	6
123 (12)	24	Minstrel Island	21/03/86	0900	1500	140	100+	7.5	1	8	36	14	64	0	0	0	0	14		169
123 (12)	25	Bones Bay	21/03/86	1145	500	500	20	7.5		Juvenile herring										
142 (14)	26	Chrome Island	24/03/86	1740	2500	200	75		1	1				0	0				155	

Table 22. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "SEMIDI", STAT. AREAS 12 - 18, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
172 (17)	1	Northumberland Channel	01/03/86	2035	1				4	5	20	25	25	10	12	1						102	18.9	19.0	53
171 (17)	2	W. of Portier Pass	02/03/86	1905	2				3	2	13	19	30	15	14	3	1					100	19.4	19.0	37
182 (18)	3	Captain Passage	03/03/86	1843	3						9	14	12	36	16	8	6					101	20.3	19.0	23
171 (17)	4	Portier Pass	05/03/86	0522	4					3	11	10	17	25	18	5	7	1	1			98	20.3	19.0	24
172 (17)	5	Northumberland Channel	05/03/86	1715				Water haul																	
172 (17)	6	Northumberland Channel	05/03/86	1831	5			1	1	11	18	25	25	14	7							102	18.8	19.0	55
142 (14)	7	Comox Bar	06/03/86	1805	6					2	4	12	22	33	17	8	2					100	20.2	19.0	18
142 (14)	8	Comox Harbour	06/03/86	2222	7				1	1	11	30	30	13	9	5						100	19.4	19.0	43
142 (14)	9	Comox Bar	07/03/86	1127	8					2	6	22	18	29	14	7	3	1				102	20.0	19.0	29
142 (14)	10	Denman Island	07/03/86	1639				Water haul																	
142 (14)	11	Henry Bay	07/03/86	1822				Water haul																	
142 (14)	12	S. of Sandy I.	07/03/86	1938	9					1	4	10	18	30	26	6	5					100	20.5	19.0	15
142 (14)	13	N. Denman Ferry Landing	08/03/86	0805	10					1	7	18	31	30	9	3	2					101	19.8	19.0	26
142 (14)	14	Ship Point	08/03/86	1105	11					1	4	11	19	36	15	11	3					100	20.4	19.0	16
142 (14)	15	Chrome Island	09/03/86	0205	12						3	16	20	33	12	3	2	0	1			90	20.1	19.0	21

Table 22 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "SEMIDI", STAT. AREAS 12 - 18, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)																Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
						12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28				
142 (14)	16	S. Chrome Island	09/03/86	0405	13					3	6	15	32	25	15	4	1					101	19.9	19.0	24
142 (14)	17	S. Chrome Island	09/03/86	0535	14	Charter payment				1	10	10	26	30	12	7	1					97	20.0	19.0	22
137 (13)	18	Breton Island	12/03/86	1905	15				5	10	24	27	23	10	2	4						105	18.6	19.0	64
137 (13)	19	Francisco Point	13/03/86	1705		Water haul																			
137 (13)	20	Breton Island	13/03/86		16					4	10	29	24	25	10	1						103	19.4	19.0	42
142 (14)	21	Lambert Channel	15/03/86	0450	17					2	6	23	26	24	14	4	3					102	19.8	19.0	30
152 (15)	22	NE. Mace Point	16/03/86	0955	18			2	3	15	21	37	18	4	5							105	18.2	19.0	74
126 (12)	23	Wakeman Sound	18/03/86	1300	19	1	1	1	24	28	27	11	6									99	16.8	19.0	94
123 (12)	24	Minstrel Island	21/03/86	0900	20		1	1	22	45	27	3	2									101	16.6	19.0	98
123 (12)	25	Bones Bay	21/03/86	1145		Juvenile herring																			
142 (14)	26	Chrome Island	24/03/86	1740	21				10	17	23	26	14	6	4							100	18.0	19.0	76

Table 23. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 14, 17 & 18, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. Catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Wt.	Roe Yield %: Adj. wt.	Roe Grade (Pcs): #1	#2	#3	Spnd. out.	Juv. or Immat.
171 (17)	1	Phillimore Point	21/02/86	1215	700	100	100lb.	6.9		Set not representative										
171 (17)	2	Phillimore Point	21/02/86	1342	700	100		6.9		Water haul										
171 (17)	3	Porlier Pass	22/02/86	0345	7000	100	3	6.8	1	49	45	60	55	0	0	0	0	60		6
173 (17)	4	Blackberry Point	22/02/86	0555	7000	200	17	6.2	1	33	40	49	60	0	0	0	0	49		
173 (17)	5	Pylades Channel	22/02/86	0806	2000	200	200	6.3	1	57	53	51	47	0	0	0	0	51		
181 (18)	6	Swanson Channel	22/02/86	1835	6500	SKIMMER	50	6.9	1	40	44	50	56	0	0	0	0	50		9
185 (18)	7	Patricia Bay	23/02/86	0600	4000	4000	150		1	48	42	66	58	0	0	0	0	66		2
171 (17)	8	1 mi. SW. of Porlier Pass	23/02/86 Porlier	1930 Pass	6500	10 fath. SKIMMER	100	7.3	1	56	58	41	42	0	0	0	0	41		2
172 (17)	9	Northumberland Channel	24/02/86	1405	3500	200	8	7.6	1	63	58	45	42	0	0	0	0	45		2
173 (17)	10	1/2 mi. E. of Descourcy Island	25/02/86	0940	500/1000	300	200	6.9	1	68	61	43	39	0	0	0	0	43		1
181 (18)	11	Phillimore Point	25/02/86	1500	100/200	30	200lb.	7.2		Set not representative										

Table 23 (cont'd). Seine set data and roe yeild information. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 14, 17, & 18, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. Catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Wt.	Roe Yield % Adj. wt.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd. out.	Juv. or Immat.
181 (18)	12	1/2 mi. W. of Shingle Bay	26/02/86	0525	6500	40	10	7.0	1	44	43	59	57	0	0	0	0	59		3
173 (17)	13	1 mi. SE. of Gabriola Island	27/02/86	1150	3000/4000	30	5	7.2	1	55	51	53	49	0	0	0	0	53		1
172 (17)	14	1/2 mi. S. of Maude Island	27/02/86	1950		100	75	7.8	1	44	43	58	57	0	0	0	0	58		1
144 (14)	15	1/2 mi. N of Craig Bay	01/03/86	0620	5000	30		7.4		Water haul										
142 (14)	16	1/4 mi. SW. of Norris Rock	01/03/86	1640		350	300	7.7	1	54	55	44	45	4.0	4.4	16	4	24		
									2	50	53	45	47	3.7	3.9	14	3	28		
									3	46	49	48	51	3.7	3.6	14	6	28		1
142 (14)	17	Hornby Island Ferry Terminal	01/03/86	2015		300	300	7.8	1	46	50	46	50	2.2	2.2	7	13	26		
									2	43	47	49	53	2.9	2.7	11	11	27		
									3	49	55	40	45	2.2	2.4	7	9	24		
142 (14)	18	1/2 mi. SW. of Chrome Island	02/03/86	0500	1500	MEDIUM SKIMMER	90	7.2	1	42	44	53	56	1.7	1.5	6	4	43		
									2	44	48	47	52	2.0	1.9	7	6	34		
									3	45	45	55	55	3.5	3.2	16	4	35		
142 (14)	19	3/4 mi. NW. of Shingle Spit	02/03/86	0940		300	100	7.6	1	45	47	50	53	4.7	4.4	19	8	23		
									2	52	53	46	47	3.3	3.5	15	8	23		
									3	41	41	59	59	4.1	3.5	17	12	30		1
142 (14)	20	Baynes Sound	03/03/86	0445	6000	MEDIUM SKIMMER	100	7.5	1	44	50	44	50	2.7	2.7	10	3	31		
									2	52	55	42	45	2.2	2.4	7	4	31		
									3	41	45	50	55	3.6	3.3	14	12	24		

Table 23 (cont'd). Seine set data and roe yeild information. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 14, 17 & 18, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or Immat.
					In loc.	Set on	Est. Catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
142 (14)	21	1/4 mi. S. Flora Inlet	03/03/86	0910	500	300	100	7.5	1	41	44	52	56	6.7	6.0	26	9	17		
									2	45	46	52	54	4.5	4.2	21	2	29		1
									3	54	57	41	43	3.9	4.5	12	14	15		1
142 (14)	22	1 mi. NE. of Ellangley Park	03/03/86	1630	1000/1500	1000/1500	30/40	7.6	1	40	50	40	50	7.4	7.4	27	10	3		
									2	57	62	35	38	3.5	4.6	11	10	14		
									3	46	52	42	48	4.2	4.4	14	10	18		

Table 24. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 14, 17 & 18, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
181 (18)	1	Phillimore Point	21/02/86	1215	1			1	2	3	8	9	5	10	17	18	15	8	2	2		100	21.3	19.0	23
181 (18)	2	Phillimore Point	21/02/86	1343		Sample not representative Water haul																			
171 (17)	3	Porlier Pass	22/02/86	0345	2				1	4	10	21	19	22	13	4	3	2	1			100	19.8	19.0	36
173 (17)	4	Blackberry Point	22/02/86	0555	3					2	2	5	10	30	26	14	7	4				100	21.1	19.0	9
173 (17)	5	Pylades Channel	22/02/86	0806	4						8	26	26	26	10	3		1				100	19.7	19.0	34
181 (18)	6	Swanson Channel	22/02/86	1835	5					1	8	23	15	29	14	6	3	1				100	20.0	19.0	32
185 (18)	7	Patricia Bay	23/02/86	0600	6				5	5	13	28	20	22	6	1						100	19.0	19.0	51
171 (17)	8	1 mi. S. W. of Porlier Pass	23/02/86	1930	7					3	17	14	18	24	7	12	5					100	19.9	19.0	34
172 (17)	9	Northumberland Channel	24/02/86	1405	8			1	2	4	8	25	28	22	8	2						100	19.3	19.0	40
173 (17)	10	1/2 mi. E. of DeCourcy Island	25/02/86	0940	9			1	1	3	10	29	23	24	7	2						100	19.3	19.0	44
181 (18)	11	Phillimore Point	25/02/86	1500	10			1		4	12	11	16	14	18	9	5	6	4			100	20.5	19.0	28
181 (18)	12	1/2 mi. W. of Shingle Spit	26/02/86	0525	11	Sample not representative				1	7	19	28	27	12	4		1	1			100	19.9	19.0	27
173 (17)	13	1 mi. S. E. of Gabriola Passage	27/02/86	1150	12					3	10	25	28	21	7	1	4	1				100	19.6	19.0	38
172 (17)	14	1/2 mi. S. of Maude Island	27/02/86	1950	13						1	12	20	30	22	11	1	2	1			100	20.6	19.0	13
144 (14)	15	1/2 mi. N. of Craig Bay	01/03/86	0620		Water haul																			

Table 24 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 14, 17 & 18, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)																Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
						12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28				
142 (14)	16	1/4 mi. S.W. of Norris Rock	01/03/86	1640	14					1	2	13	25	27	16	12	3	1				100	20.4	19.0	16
142 (14)	17	Hornby Island Ferry Terminal	01/03/86	2015	15						5	15	23	30	14	8	3		2			100	20.3	19.0	20
142 (14)	18	1/2 mi. S.W. of Chrome Island	02/03/86	0500	16					1	5	10	28	33	16	3	2	2				100	20.2	19.0	16
142 (14)	19	3/4 mi. N.W. of Shingle Spit	02/03/86	0940	17			1		1	4	15	29	30	12	5	1	1	1			100	20.0	19.0	21
142 (14)	20	Baynes Sound	03/03/86	0445	18					1	2	12	33	24	18	9	3	1				103	20.9	19.0	14.6
142 (14)	21	1/4 mi. S. of Flora Islet	03/03/86	0910	19				2		7	17	32	25	10	4	2	1				100	19.8	19.0	26
142 (14)	22	1 mi. N.E. of Fillongley Park	03/03/86	1630	20						3	20	27	23	15	9	3					100	20.2	19.0	23

Table 25. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC HARVESTER", STAT. AREAS 23 & 24, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or Immat.
					In loc.	Set on	Est. Catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
231 (23)	1	Sechart Channel	26/02/86	0545		SKIMMER	1	7.0	1	61	45	74	55	0	0	1	0	73		
232 (23)	2	Forbes Island	27/02/86	0930	400	100	10	7.3	1	47	53	42	47	9.5	10.1	30	1	11		
									2	55	59	38	41	5.5	6.7	21	6	11		
									3	53	56	41	44	7.0	8.0	27	1	13		
									4	52	57	39	43	8.3	9.7	27	3	9		
232 (23)	3	Forbes Island	28/02/86	0920	400	80		7.2		Water haul										
233 (23)	4	Lyall Point	28/02/86	1355	50	15	5	8.0	1	78	57	60	43	1.5	1.7	14	2	44		
									2	74	56	57	44	1.5	1.7	13	5	39		1
233 (23)	5	Mayne Bay	28/02/86	1640	80	15	1		1	59	51	57	49	0	0	3	5	49		40
232 (23)	6	Chrow Island	01/03/86	0800	100	20	10	7.8	1	61	61	39	39	2.0	2.6	10	2	27		
									2	61	56	48	44	6.0	6.8	22	3	23		
									3	64	60	42	40	4.0	5.0	17	2	23		
									4	52	45	64	55	6.5	5.9	29	3	32		
232 (23)	7	Between Forbes & Chrow Island	02/03/86	0920	300	25	10	7.0	1	57	44	73	56	2.0	1.8	10	3	60		
									2	40	33	80	67	1.0	0.8	7	4	69		
									3	49	37	83	63	1.0	0.8	9	5	69		
232 (23)	8	Forbes Island	02/03/86	1105	300	60	60	7.8	1	43	47	48	53	6.0	5.7	21	5	22		
									2	38	38	61	62	9.5	7.7	35	6	20		1
									3	50	52	47	48	8.0	8.3	29	5	13		
233 (23)	9	Lyall Point	02/03/86	1505	2000	50	.5	8.0	1	63	57	47	43	0	0	3	0	44		65

Table 25 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC HARVESTER", STAT. AREAS 23 & 24, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade(Pcs)			Spnd. out.	Juv. or immat.
					In loc.	Set on	Est. Catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
231 (23)	10	Sechart Channel	03/03/86	0545	500	250	150	8.0	1	46	48	50	52	10.0	9.6	35	8	7		
									2	52	48	56	52	13.0	12.5	51	3	2		
									3	48	46	56	54	12.5	11.6	44	6	6		
233 (23)	11	Lyall Point	03/03/86	1420		15		8.0		Water haul										
232 (23)	12	Newcombe Channel	04/03/86	0620	1500	300	150	8.2	1	39	43	51	57	13.5	11.8	39	4	8		
									2	48	48	51	52	9.5	9.1	36	6	9		
									3	44	44	55	56	13.0	11.6	44	3	8		
									4	41	41	60	59	12.5	10.6	44	5	11		
232 (23)	13	Chrow Island	04/03/86	0855		75	75	8.0	1	64	50	63	50	4.5	4.5	26	5	32		
									2	67	54	58	46	6.5	7.1	33	6	19		1
									3	54	44	68	56	6.5	5.8	29	6	33		1
232 (23)	14	St. Ines Island	04/03/86	1750	250	250	175	8.0	1	45	46	53	54	12.5	11.6	39	4	10		1
									2	50	48	55	52	14.0	13.5	44	3	8		
									3	47	46	55	54	11.0	10.2	41	1	13		
232 (23)	15	Forbes Island	05/03/86	0725	1500	500	300	8.2	1	53	50	53	50	11.0	11.0	43	6	4		
									2	57	54	49	46	11.0	12.0	41	4	4		
									3	64	56	51	44	11.0	12.5	40	3	8		
232 (23)	16	Forbes Island	05/03/86	1010		130	1	8.4	1	61	42	85	58	1.0	0.9	9	2	74		7
232 (23)	17	Between Chrow & Bag Island	05/03/86	1705		200	120	9.0	1	46	39	72	61	14.5	11.9	60	8	4		
									2	55	47	62	53	12.0	11.3	49	5	8		
									3	52	46	62	54	11.5	10.6	47	5	10		
									4	55	48	59	52	12.0	11.5	48	5	6		

Table 25 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC HARVESTER", STAT. AREAS 23 & 24, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or Immat.
					In loc.	Set on	Est. Catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
232 (23)	18	Chrow Island	06/03/86	0815		140		9.5	1	57	52	52	48	12.0	12.5	46	1	5		
									2	46	42	63	58	14.0	12.1	52	3	8		
									3	53	50	52	50	12.0	12.0	43	3	6		
232 (23)	19	Between Chrow & Cabbage Rocks	06/03/86	1140		130		9.0	1	51	43	68	57	10.5	9.2	47	2	19		
									2	56	41	79	59	6.5	5.5	44	7	28		
									3	58	47	65	53	9.5	9.0	45	3	17		
232 (23)	20	Bag Island	08/03/86	1127	1000	100	50	9.2	1	37	40	56	60	15.0	12.5	51	0	5		
									2	56	55	46	45	11.5	12.8	42	0	4		
									3	62	60	42	40	10.5	13.1	39	1	2		
232 (23)	21	Newcombe Channel	08/03/86	1335	6000	100	500	9.9	1	49	46	58	54	12.0	11.1	48	1	9		
232 (23)	22	Newcombe Channel	08/03/86	1445	1000	50	2	9.9	1	52	40	79	60	5.0	4.2	25	0	54		
									2	53	38	86	62	3.5	2.8	23	1	62		2
									3	48	34	93	66	3.5	2.7	24	1	68		1
232 (23)	23	S. off St. Ines Island	09/03/86	1012	9000		600	9.8	1	43	46	51	54	14.0	13.0	49	0	2		
									2	50	49	53	51	14.5	14.2	52	0	1		
									3	45	43	60	57	15.0	13.2	58	0	2		
232 (23)	24	Chrow Island	09/03/86	1240	1000	500	250	9.3	1	49	45	61	55	14.5	13.2	54	2	5		
									2	59	49	61	51	13.0	12.7	55	0	6		
									3	59	48	64	52	14.0	13.5	56	0	8		1
232 (23)	25	Forbes Island	09/03/86	1457	300/400	50	30	9.5	1	52	41	76	59	9.5	8.1	45	3	28		
									2	69	48	74	52	7.5	7.2	42	2	30		
									3	63	46	74	54	7.5	6.9	40	3	31		

Table 25 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC HARVESTER", STAT. AREAS 23 & 24, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. Catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Vol.	Roe Yield %: Adj. vol.	Roe Grade (Pcs): #1	#2	#3	Spnd. out.	Juv. or Immat.
232 (23)	26	Between Rowland & St. Ines I.	10/03/86	0653		75/100		9.0		Water haul (No sample)										
233 (23)	27	Mayne Bay	10/03/86	0915		40/50		9.5	1	62	54	52	46	11.0	12.0	48	0	4		
									2	57	48	61	52	11.8	11.3	50	2	9		
									3	67	56	52	44	10.5	11.9	44	2	6		
233 (23)	28	S. of Hankin I. Charter Payment	10/03/86	1200		70/75		9.5	1	52	53	46	47	12.5	13.3	43	1	2		
									2	55	51	52	49	13.5	13.8	51	0	1		
				Test 4-6 (Begin pumping)					3	50	47	56	53	14.3	13.5	52	0	4		
									4	53	52	49	48	12.0	12.5	46	0	3		
									5	61	57	46	43	11.0	12.8	45	1	0		
				Test 7-9 (Mid pumped)					6	63	58	45	42	10.0	11.9	40	1	4		
									7	75	65	40	35	9.0	12.9	37	0	3		
									8	77	65	41	35	9.0	12.9	39	0	2		
				Test 10-12 (End pumped)					9	73	61	46	39	10.0	12.8	41	0	5		
									10	58	51	55	49	14.0	14.3	52	1	2		
									11	48	44	62	56	14.3	12.8	56	4	2		
									12	51	47	58	53	14.5	13.7	55	1	2		
232 (23)	29	S. Tip of Stopper Island Charter payment	10/03/86	1637					1	61	55	50	45	12.5	13.9	47	0	3		
									2	56	47	62	53	12.0	11.3	56	0	6		
									3	43	38	69	62	15.0	12.1	67	0	2		
				Test 4-6 (Begin pumping) (Packer "Caledonian")					4	58	50	58	50	14.0	14.0	54	0	4		
									5	68	65	36	35	10.0	14.3	35	0	1		
									6	60	52	55	48	11.0	11.5	48	1	6		
				Test 7-9 (Mid pumped)					7	72	59	50	41	10.5	12.8	45	3	2		
									8	56	48	60	52	12.8	12.3	53	0	7		
									9	59	50	59	50	11.3	11.3	47	3	9		

Table 25 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC HARVESTER", STAT. AREAS 23 & 24, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. Catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Vol.	Roe Yield % Adj. vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd. out.	Juv. or Immat.
						Test 10-12 (End pumped) (Packer "Ocean Ranger")			10	60	54	52	46	11.5	12.5	49	0	3		
									11	56	48	61	52	14.0	13.5	58	0	3		
									12	51	48	56	52	14.3	13.8	55	1	0		
233 (23)	30	Warner Rock	11/03/86	0720		400				Water haul										
232 (23)	31	St. Ines Island Charter payment	11/03/86	1645	1500	120	40	9.0	1	50	45	61	55	13.8	12.5	56	2	3		
									2	48	44	61	56	13.8	12.3	58	1	2		
						Test 3-4 (Begin pumping) (Packer "Queen Ranger")			3	66	54	57	46	13.0	14.1	54	2	1		
									4	72	63	42	37	10.5	14.2	40	0	2		
232 (23)	32	W. of Chrow I.	13/03/86	1015	10000	150				Water haul										
232 (23)	33	Newcombe Island	14/03/86	1045		500	10	8.8	1	42	42	58	58	15.5	13.4	57	0	1		
									2	40	40	59	60	15.0	12.5	58	0	1		
232 (23)	34	W. of Forbes I.	14/03/86	1215	10000	60	60		1	60	50	61	50	12.5	12.5	54	0	7		
									2	43	36	75	64	15.0	11.7	72	0	3		
									3	57	47	64	53	12.0	11.3	51	1	12		
232 (23)	35	W. of Forbes I.	14/03/86	1745	800	400	80	9.0	1	49	45	60	55	14.0	12.7	56	0	4		
									2	53	47	59	53	15.0	14.2	58	0	1		
232 (23)	36	Chrow Island	15/03/86	1140	10000		120		1	62	54	52	46	12.0	13.0	51	0	1		
									2	55	47	63	53	14.5	13.7	60	0	3		

Table 25 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC HARVESTER", STAT. AREAS 23 & 24, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or Immat.
					In loc.	Set on	Est. Catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
232 (23)	37	Cabbage Rocks	18/03/86	0915	1000	75	75	9.3	1	42	48	46	52	15.0	14.4	44	0	2	15	
									2	48	59	34	41	9.0	11.0	34	0	0	27	
									3	52	51	49	49	9.5	9.7	48	0	1	17	
232 (23)	38	S. Stopper Is.	18/03/86	2000	500	500	125	9.7	1	64	57	48	43	11.5	13.4	46	0	2	4	
									2	54	47	60	53	14.5	13.7	58	2	0	5	
243 (24)	39	Holmes Inlet	20/03/86	0910	300/500	300/500				Water haul										

Table 26. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "PACIFIC HARVESTER", STAT. AREAS 23 & 24, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
231 (23)	1	Sechart Channel	26/02/86	0545	1			1	3	19	29	22	17	3	4	2						100	18.1	19.0	74
232 (23)	2	Forbes Island	27/02/86	1930	2						1		4	8	16	29	27	9	5	1		100	22.7	19.0	1
232 (23)	3	Forbes Island	28/02/86	0920		Water haul																			
233 (23)	4	Lyall Point	28/02/86	1355	3				1		5	16	20	25	23	6	3	1				100	20.3	19.0	22
233 (23)	5	Mayne Bay	28/02/86	1640	4			1		4	28	20	27	12	7	1						100	18.9	19.0	53
232 (23)	6	Chrow Island	01/03/86	0800	5							1	11	23	22	22	14	4	3			100	21.8	19.0	1
232 (23)	7	Between Forbes & Chrow Island	02/03/86	0920	6				1		7	9	35	32	12	3	1					100	19.9	19.0	17
232 (23)	8	Forbes Island	02/03/86	1105	7							1	4	17	20	28	13	13	4			100	22.3	19.0	1
233 (23)	9	Lyall Point	02/03/86	1505	8			1	1	9	34	20	13	14	5	1	2					100	18.6	19.0	65
233 (23)	10	Sechart Channel	03/03/86	0545	9						2	2	7	19	24	27	11	8				100	21.8	19.0	4
233 (23)	11	Lyall Point	03/03/86	1420		Water haul																			
232 (23)	12	Newcombe Channel	04/03/86	0620	10						1	3	8	21	18	15	19	11	4			100	22.0	19.0	4
232 (23)	13	Chrow Island	04/03/86	0855	11						1	7	22	37	21	8	4					100	20.6	19.0	8
232 (23)	14	St. Ines Island	04/03/86	1750	12							1	14	22	21	15	16	8	3			100	21.8	19.0	1
232 (23)	15	Forbes Island	05/03/86	0725	13							3	12	20	28	19	12	5	1			100	21.6	19.0	3

Table 25(cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "PACIFIC HARVESTER", STAT. AREAS 23 & 24, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
232 (23)	16	Forbes Island	05/03/86	1010					2	9	13	26	19	21	7	2	1					100	19.1	19.0	50
232 (23)	17	Between Chrow & Bag Island	05/03/86	1705	14						1	3	13	25	22	21	8	3	2	1		99	21.4	19.0	4
232 (23)	18	Chrow Island	06/03/86	0815	15							6	14	16	28	15	10	8	3			100	21.6	19.0	6
232 (23)	19	Between Chrow & Cabbage Rocks	06/03/86	1140	16							4	20	36	20	13	4	3				100	20.9	19.0	4
232 (23)	20	Bag Island	08/03/86	1127	17								8	7	21	21	24	9	9	1		100	22.6	19.0	0
232 (23)	21	Newcombe Channel	08/03/86	1335	18	Sample not representative																			
232 (23)	22	Newcombe Channel	08/03/86	1445	19					2	5	8	17	29	19	9	7	4				100	20.7	19.0	15
232 (23)	23	S. Off St. Ines Island	09/03/86	1012	20								4	12	20	24	15	15	10			100	22.7	19.0	0
232 (23)	24	Chrow Island	09/03/86	1240	21							2	13	25	25	16	8	9	1	1		100	21.6	19.0	2
232 (23)	25	Forbes Island	09/03/86	1457	22						5	6	19	38	14	7	4	5	1	1		100	20.8	19.0	11
232 (23)	26	Between Rowland & St. Ines I.	10/03/86	0653		Water haul (No sample)																			
233 (23)	27	Mayne Bay	10/03/86	0915	23					1	2	4	10	32	30	10	4	6	1			100	21.1	19.0	7
233 (23)	28	S. of Hankin	10/03/86	1200	24	Charter payment					1	3	14	16	25	23	11	7				100	21.6	19.0	4
232 (23)	29	S. Tip of S. Stopper Island	10/03/86	1637	25	Charter payment					1	6	9	28	26	18	7	6				101	21.3	19.0	7
233 (23)	30	Warner Rock	11/03/86	0720		Water haul																			

Table 26(cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "PACIFIC HARVESTER", STAT. AREAS 23 & 24, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
232 (23)	31	St. Ines Island	11/03/86	1645	26	Charter payment				1	2	2	21	30	20	16	8	5	1			106	21.1	19.0	4.7
232 (23)	32	W. of Chrow I.	13/03/86	1015		Water haul																			
232 (23)	33	Newcombe Island	14/03/86	1045	27						3	1	2	17	21	23	16	9	6	1		99	21.3	19.0	6
232 (23)	34	W. of Forbes I.	14/03/86	1215	28						4	8	11	30	21	19	5	1	1			100	20.9	19.0	12
232 (23)	35	W. of Forbes I.	14/03/86	1745	29							4	12	28	24	15	15	1	1			100	21.4	19.0	4
232 (23)	36	Chrow Island	15/03/86	1140	30						3	3	11	22	31	16	7	4	2			99	21.3	19.0	6
232 (23)	37	Cabbage Rocks	18/03/86	0915	31								3	20	18	19	22	16	2			100	22.4	19.0	3
232 (23)	38	S. Stopper I.	18/03/86	1200	32							4	12	23	21	22	13	2	1			98	21.5	19.0	4
243 (24)	39	Holmes Inlet	20/03/96	0910		Water haul																			

Table 27. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ELLING K", STAT. AREAS 23 - 25, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or immat.
					In loc.	Set on	Est. Catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
252 (25)	1	Cook Channel	22/02/86	1340	1000	250	150	6.3	1	60	47	67	53	0	0	0	0	67		
253 (25)	2	Esperanza Inlet	23/02/86	0830	3000 5000	100 150		7.0		Water haul										
253 (25)	3	Esperanza Inlet	23/02/86	1025	3000 5000	200		7.2		Water haul										
253 (25)	4	Esperanza Inlet	23/02/86	1215	3000 5000	100		7.2		Water haul										
253 (25)	5	Esperanza Inlet	23/02/86	1800		40		7.2		Water haul										
253 (25)	6	Esperanza Inlet	24/02/86	0840	4000	200	80	7.0	1	60	54	52	46	2.0	2.2	14	4	34		
252 (25)	7	Cook Channel	25/02/86	0950	1500	500	50	7.3	1	53	43	69	57	1.0	0.9	4	2	63		
243 (24)	8	Sydney Inlet	28/02/86	1840	200 300	150	20 30	7.0	1	45	40	67	60	10.0	8.3	50	2	15		2
									2	52	45	63	55	9.0	8.2	50	0	13		
									3	63	53	56	47	8.0	8.5	35	3	18		2
231 (23)	9	Sechart Channel	06/03/86	0900	400	150	30	7.0	1	39	41	55	59	10.0	8.5	40	1	14		
									2	45	44	58	56	11.0	9.8	41	1	16		
252 (25)	10	Saavedra Island	07/03/86	1010	200 300	75	5	8.5	1	45	48	48	52	1.0	1.0	12	2	34	3	2
									2	50	53	44	47	1.0	1.1	6	2	36		2
253 (25)	11	Gillam Channel	08/03/86	1025		200				Water haul										

Table 27(cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ELLING K", STAT. AREAS 23 - 25, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or immat.
					In loc.	Set on	Est. Catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
253 (25)	12	Gillam Channel	08/03/86	1130	1000	500	150/200		1	57	55	47	45	10.0	11.1	43	1	3	1	
									2	48	44	60	56	14.0	12.5	56	1	3	2	
									3	42	45	52	55	14.0	12.7	49	0	3	6	
253 (25)	13	Gillam Channel	08/03/86	1345	1000	400				Water haul										
253 (25)	14	Gillam Channel	08/03/86	1415	1000	200/300				Water haul										
253 (25)	15	Gillam Channel	08/03/86	1540	1000	1000+	300	8.0	1	48	45	58	55	14.0	12.7	57	1	0		
									2	43	46	51	54	13.0	12.0	50	1	0	1	3
									3	47	46	56	54	14.0	13.0	55	1	0	2	1
243 (24)	16	Sydney Inlet	13/03/86	0710	200	200				Set not representative										
243 (24)	17	Hot Springs Cove	13/03/86	1900	400	400	50		1	60	47	68	53	6.5	6.1	39	0	29	7	
									2	71	51	67	49	6.0	6.1	37	0	30	13	
243 (24)	18	Sydney Inlet	16/04/86	1655	100	100				Set not representative										
243 (24)	19	Hot Springs Cove	17/03/86	0735	500	100	50		1	55	50	56	50	13.0	13.0	56	0	0		
									2	55	48	59	52	14.5	13.9	58	0	1		
									3	70	58	51	42	11.0	13.1	48	2	1	2	
242 (24)	20	Mesquiat Harbour	02/03/86	1314				8.5	1	50	55	41	45	9.0	10.0	37	2	2		
									2	53	60	35	40	9.0	11.3	33	0	2		

Table 28. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ELLING K", STAT. AREAS 23 - 25, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)																Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
						12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28				
252 (25)	1	Cook Channel	22/02/86	1340	1						1	8	32	28	25	6	1	1				100	20.8	19.0	9
253 (25)	2	Esperanza Inlet	23/02/86	0830				Water haul																	
253 (25)	3	Esperanza Inlet	23/02/86	1025				Water haul																	
253 (25)	4	Esperanza Inlet	23/02/86	1215				Water haul																	
253 (25)	5	Esperanza Inlet	23/02/86	1800				Water haul																	
253 (25)	6	Esperanza Inlet	24/02/86	0840	2							1	20	32	25	15	5	1				99	21.0	19.0	1
252 (25)	7	Cook Channel	25/02/86	0950	3							9	38	26	18	7	2					100	20.3	19.0	9
243 (24)	8	Sydney Inlet	28/02/86	1840	4				2	1	3	11	16	22	27	9	8	1	1			101	20.7	19.0	17
231 (23)	9	Sechart Channel	06/03/86	0900	5								12	22	23	25	11	6	1			100	21.7	19.0	0
252 (25)	10	Saavedra Island	07/03/86	1010	6						5	10	35	35	12	3						100	20.0	19.0	15
253 (25)	11	Gillam Channel	08/03/86	1025				Water haul																	
253 (25)	12	Gillam Channel	08/03/86	1130	7								9	26	34	25	5	2				101	21.5	19.0	0
253 (25)	13	Gillam Channel	08/03/86	1345				Water haul																	
253 (25)	14	Gillam Channel	08/03/86	1415				Water haul																	
253 (25)	15	Gillam Channel	08/03/86	1540	8					1	3	0	16	27	32	16	5	1				101	21.0	19.0	4

Table 28 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ELLING K", STAT. AREAS 23 - 25, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
243 (24)	16	Sydney Inlet	13/03/86	0710		Sample not representative																			
243 (24)	17	Hot Springs Cove	13/03/86	1900	9				2	7	8	11	32	16	17	3	2	1				99	19.7	19.0	28
243 (24)	18	Sydney Inlet	16/04/86	1655		Sample not representative																			
243 (24)	19	Hot Springs Cove	17/03/86	0735	10					1	0	9	10	33	24	11	9	3				100	21.0	19.0	10
242 (24)	20	Hesquiat Harbour	02/03/86	1314	11					1	0	1	6	13	15	28	18	11	5	1		99	22.4	19.0	2

Table 29. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "C VENTURE", STAT. AREAS 25 - 27, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out.	Juv. or Immat.
					In loc.	Set on	Est. Catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
253 (25)	1	Canter Island	28/02/86	1713	3000 / 4000		125	7.5	1	62	54	53	46	6.5	7.1	32	3	18		
									2	55	48	60	52	7.8	7.5	34	7	19		
253 (25)	2	Double Island	01/03/86	0744	3000 / 4000	2000		7.0	1	55	45	68	55	8.0	7.3	40	6	22		
									2	51	44	66	56	8.0	7.1	36	7	23	1	
252 (25)	3	Saaredra Island	02/03/86	1045	1000	100				Water haul										
252 (25)	4	Saaredra Island	02/03/86	1150	1000			7.1		Water haul										
252 (25)	5	Cook Channel	02/03/86	1245	1000	150	100		1	86	58	63	42	7.1	8.5	4	5	54		
253 (25)	6	Canter Island	03/03/86	1445	3000 / 3500	100	40	8.0	1	64	52	58	48	8.0	8.3	41	7	10	1	
									2	50	41	71	59	8.3	7.0	44	6	21		
272 (27)	7	Donald Islets	06/03/86	0730	1200 / 1400	1200		8.0		Water haul										
272 (27)	8	Donald Islets	06/03/86	0750	1200 / 1400	1200	300 / 400	8.0	1	50	44	63	56	14.0	12.5	59	1	3		
									2	55	52	50	48	13.0	13.5	47	1	2		
273 (27)	9	Forward Inlet	06/03/86	1330	600 / 700	150	150	8.0	1	62	51	60	49	12.0	12.2	50	2	8		
									2	52	41	75	59	12.3	10.4	60	9	6		
272 (27)	10	McDougal Island	08/03/86	0530	1500		0.5			Set not representative										
272 (27)	11	McDougal Island	08/03/86	0600	2000	2000	20			Set not representative										
272 (27)	12	Donald Islets	09/03/86	0730		70 / 80				Set not representative										

Table 29 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "C VENTURE", STAT. AREAS 25 - 27, 1986

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. Catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Vol.	Roe Yield %: Adj. vol.	Roe Grade (Pcs): #1	Roe Grade (Pcs): #2	Roe Grade (Pcs): #3	Spnd. out.	Juv. or Immat.
272 (27)	13	Donald Islets	09/03/86	0800	1400	1200	250	7.5	1	57	51	55	49	13.0	13.3	52	1	2		
									2	52	48	57	52	12.5	12.0	55	1	1		
									3	68	61	44	39	11.8	15.1	44	0	0		
262 (26)	14	Kyuquot Sound	12/03/86	0930	500	100	70	8.0	1	43	41	62	59	12.5	10.6	57	1	4	10	
									2	45	44	68	56	14.0	12.5	65	0	3	5	
									3	55	45	67	55	14.0	12.7	63	2	2	7	
253 (25)	15	Double Island	14/03/86	1005	50	40		8.2		Water haul										
253 (25)	16	Double Island	14/03/86	1042	50	40		8.2		Set not representative										
253 (25)	17	Double Island	17/03/86	0920		60		8.3		Water haul										
253 (25)	18	Esperanza Inlet	17/03/86	0950		60		8.3		Spawned out										
253 (25)	19	Double Island	17/03/86	1030		30/40	35	7.8		Spawned out										

Table 30. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "C VENTURE", STAT. AREAS 25 - 27, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
253 (25)	1	Canter Island	28/02/86	1713	1							1	9	23	41	15	9	1	1			100	21.5	19.0	1
253 (25)	2	Double Island	01/03/86	0744	2							3	18	33	28	4	4	1	1			92	20.9	19.0	3
252 (25)	3	Seavedra Island	02/03/86	1045		Water haul																			
252 (25)	4	Seavedra Island	02/03/86	1150		Water haul																			
252 (25)	5	Cook Channel	02/03/86	1245	3						2	8	27	30	24	5	2	2				100	20.5	19.0	10
253 (25)	6	Canter Island	03/03/86	1445	4				1	0	0	0	14	32	29	15	6	3				100	21.2	19.0	1
272 (27)	7	Donald Islets	06/03/86	0730		Water haul																			
272 (27)	8	Donald Islets	06/03/86	0750	5						1	2	3	26	31	24	11	1				100	21.6	19.0	3
273 (27)	9	Forward Inlet	06/03/86	1330	6					1	4	5	12	28	31	13	6					100	20.9	19.0	10
272 (27)	10	McDougal Island	08/03/86	0530		Sample not representative																			
272 (27)	11	McDougal Island	08/03/86	0600		Sample not representative																			
272 (27)	12	Donald Islets	09/03/86	0730		Sample not representative																			
272 (27)	13	Donald Islets	09/03/86	0800	7						1	1	6	24	43	22	2	1				100	21.4	19.0	2
262 (26)	14	Kyuquot Sound	12/03/86	0930	8							1	6	24	32	28	6	3				100	21.6	19.0	1
253 (25)	15	Double Island	14/03/86	1005		Water haul																			

Table 30 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "C VENTURE", STAT. AREAS 25 - 27, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
253 (25)	16	Double Island	14/03/86	1042		Sample not representative																			
253 (25)	17	Double Island	17/03/86	0920		Water haul																			
253 (25)	18	Esperanza Inlet	17/03/86	1950		Water haul																			
253 (25)	19	Double Island	17/03/86	1030	9								8	22	47	17	4	1	1			100	21.4	19.0	0

Table 31. Seine set data and roe yield information. DFO DRUM SEINER "WALKER ROCK", STAT. AREA 17, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. Catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Wt.	Roe Yield % Adj. wt.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd. out.	Juv. or Immat.
171 (17)	1	Porlier Pass	07/03/86	1500	8000/9000	20	30		1	67	58	49	42	2.0	2.4	12	5	32		1
									2	53	48	57	52	2.8	2.7	13	4	40		2
172 (17)	2	Northumberland Channel	09/03/86	0400	8000/9000	SKIMMER	10		1	77	58	56	42	1.5	1.8	10	0	46		7
									2	83	64	46	36	0	0	2	4	40		1
172 (17)	3	Nanoose Bay	09/03/86	1000	20	5	5			Juvenile herring										
173 (17)	4	Stuart Channel	10/03/86	1900	1000/2000	200	20		1	52	54	44	46	10.0	10.9	37	2	5		
									2	46	48	49	52	12.0	11.5	41	4	4		
									3	57	54	48	46	8.2	8.9	39	3	6		

Table 32. Seine set data and roe yield information. DFO DRUM SEINER "WALKER ROCK", STAT. AREA 17, 1986.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
171 (17)	1	Porlier Pass	07/03/86	1500	1				4	5	20	33	21	13	3	1						100	18.7	19.0	62
172 (17)	2	Northumberland Channel	09/03/86	0400	2		1	2	10	16	22	20	20	8	1							100	17.9	19.0	71
172 (17)	3	Nanoose Bay	09/03/86	1000	3	Juvenile herring																			
173 (17)	4	Stuart Channel	10/03/86	1900	4					6	8	22	15	19	19	6	3	2				100	19.9	19.0	36

ACKNOWLEDGEMENTS

The author would like to thank the charter vessel masters and crews for their "above the call of duty" effort during the test fishery. In addition to obtaining samples and providing biomass estimates, the charter vessel masters were part of the management team and were directly involved in management decisions for the commercial fishery openings, and they did an admirable job.

Appreciation is expressed to the fishery officers, technicians and biologists who ensured that sampling guidelines were followed and the data recorded in a concise manner. Thanks are also extended to Jim Mitchell who monitored the charter payment catch and did an excellent job, to Alvin Sewid who helped organize the sampling equipment, and to Dennis Chalmers and Lloyd Webb who reviewed the text. A special thanks is extended to Matt Palmer and Milja Salapura for tabulating the data from the raw data sheets and to Shelley Doering for typing the report. A special thanks is also extended to Alice Fedorenko for editing and preparing the report for publication.

Appendix Table 1. Onboard sampling instructions.

1. Selection of sample sites

   (a) A list of priority sites will be supplied to charter masters by the district Herring Management Coordinator.

   (b) While the onboard Fisheries Service representative is in charge of all charter operations, consultation with the vessel master is necessary to determine if it is possible to set in any given location at any given time.

2. Number of sample sets

   (a) For each important fishing location, secure 1 or 2 sample sets per visit. (e.g. from Mayne Bay secure one set in the evening and one in the morning, then travel to another location). Each such major location should be resampled at regular intervals.

To achieve a balanced number of samples from all areas, the following is a general guideline for the frequency of sample collection. The areas of the coast have been split into two groups as follows:

Major Areas		Minor Areas
2E	Chushewa/Juan Perez/Skincuttle	2W - sample each inlet as
3/4	Port Simpson/Big Bay	frequently as possible
5		4 - north end Porcher I.
6		8
7		9/10
14		12
15/16		13
17	north and south	18
23		
24		
25		
26		
27		

Where possible, obtain 3 or 4 samples per week from each major area and 1 or 2 samples per week from each minor area. It is important that sampling continue throughout the charter period, as fish are available, because age composition generally changes through the spawning season. It must be remembered that spawned out herring are just as important as unspawned herring in determining biological characteristics of different herring stocks.

   (b) If it is evident from echosounding that few fish are present in the major fishing location, immediately go on to the next site.

   (c) Try not to make large sets if the vessel master is confident a good cross section of available fish can be taken in a smaller set.

Appendix Table 1 (cont'd).

(d) Do not set twice on immature (young herring) stocks unless doubt exists that the first set was not representative of stocks in that location.

(e) Whether or not fish are caught, complete the Wheelhouse and Sample Log after each set; also, note the set in the Daily Log (Black Book).

3. Taking a random sample from the pursed seine

(a) Dry up the seine only as necessary to obtain samples; push the dip net or brailer vertically deep into the seine, then pull up quickly through a "BOIL" of fish so as to give no advantage to larger, faster fish. Some vessel masters may prefer to pump samples, eliminating much of the "drying up" process.

(b) Assure yourself of enough fish by taking at least 5 sample buckets from each set.

(c) After obtaining a representative sample, immediately release the remaining fish to minimize scale damage.

(d) Mix the herring in the 5 sample buckets by pouring the herring back and forth in the 5 buckets.

(e) After the herring are measured, fill one sample bucket with a random sample of herring, place one completed shipping/sample lable inside on top of the fish and affix the other to the bucket handle. If sampling is delayed, cover the fish with a tarp to prevent loss to birds.

For the 1986 roe herring season, two types of labels were used:

1. Black-printed label for the normal biological sample retained after every set.

2. Red-printed label for special samples ie. GSI, fecundity or abnormal herring encountered.

(f) Keep samples refrigerated on ice or in chilled seawater.

(g) Caution the vessel master to instruct the crew not to throw any fish overboard until Fisheries Service samples have been processed.

Appendix Table 1 (cont'd).

4. Processing onboard charter vessel samples

(a) Sample for roe yield using standard volumetric procedures as detailed in the instructions included with the ROE SAMPLE KIT.

(b) Measurement of fish in sample:

i) Subsample from the 5 sample buckets by measuring 20 herring from each bucket - do not pick out fish individually.

ii) The sampler should face away from the bucket containing fish and drop his hand into it. The first fish touched must be sampled, and each fish thereafter is selected by the same method until the sample is complete (100 fish). If a fish is not suitable for sampling (damaged), discard it and continue.

(c) Measure the fish

i) Tack the waterproof Wheelhouse and Sample Log to the measuring board.

ii) Record the "cut off" on the Wheelhouse and Sample Log and pencil in the appropriate "cut off" line on the measuring sheet; record the % below the cut off.

iii) Before measuring a fish, use a sharp knife to remove scales from the tail section. This is very important since the length measurement goes to the end of the silvery colour on the skin of the fish and not to the end of the scales which cover the silvery colour on the skin.

iv) Measure 100 fish, each from the tip of the lower jaw to the end of the silvery colour on the tail. Every fish length should be recorded by marking the interval it falls into.

(d) IMPORTANT - Please attempt to send the biological samples to Vancouver and Nanaimo before they decompose. Advise by B.C. telephone or radio telephone (to XL177) of when and how the samples are sent, i.e. commercial carrier destination and estimated time of arrival.

Appendix Table 2. The 1986 roe herring cutoff lengths used to separate age 3 herring from older fish.

Statistical Area	Cutoff length
NORTH COAST	
Area 2E	190 mm
2W	200 mm
5	180 mm
6 - 10	185 mm
STRAIT OF GEORGIA	
Areas 14 - 18	190 mm
WEST COAST VANCOUVER ISLAND	
23	190 mm
24	190 mm
25	190 mm
27	190 mm

NOTE: It should be noted that these cutoff lengths are used as reference points only in order to compare different test samples. They are derived from the average lengths of three-year-old fish from the previous year and may or may not reflect the average length this year. In addition, there can be a considerable overlap in size between fish of different ages, so there is no definite length that can be used to separate the two groups of fish. Generally, these cutoff lengths provide additional information on size distribution of the stocks.

An example of the usefulness of these cutoff lengths would be when comparing test sets made at the same location on different days. A large difference in the percentage of fish below the cutoff length may indicate that two different stocks of fish are present or that new fish have moved into the area. This is additional information used to determine the overall stock status.

Appendix Table 3. Instructions for estimating percent roe yield by volume.

This KIT contains:

- one clear plastic volumetric cylinder
- one 18 l (4 imp. gal.) bucket with lid
- instruction sheet with photographs at maturity stages

Determination of roe maturity:

1. Randomly obtain approximately 34 kg (75 lb) of herring from the set or load.
2. Fill the roe test bucket with fish level to the top of the bucket.
3. Determine sex of all fish in the bucket (by stripping).
4. Record numbers of each sex on sampling sheet.
5. Strip all roe from females.
6. Record condition of all roe on sampling sheet.

   Condition 1 - acceptable by fishing companies for the Japanese market (bright yellow translucent eggs, few blood vessels) shown as **MATURE 1** in photograph appended to the ROE SAMPLE KIT.

   Condition 2 - may be 2-3 days from acceptability (unclear and pinkish in colour, becoming translucent, too many blood vessels) shown as **IMMATURE 2** in photograph appended to the ROE SAMPLE KIT.

   Condition 3 - may be 10 days from acceptability (very opaque with prominent blood vessels) shown as **IMMATURE 3** in photograph appended to the ROE SAMPLE KIT.

7. Deposit all Mature 1 roe into volumetric cylinder. Record the percent recovery from the scale on the side of the cylinder. Also record the number of females in conditions 1, 2 and 3, and record the number of males.
8. Repeat the above procedure with a second sample and average the results. If the results of the two samples are very different, a third test may be required.

   Also, record the number of spawned out and juvenile/immature herring, and note gonad running.

Appendix Table 4. Instructions for estimating percent roe yield by weight.

1. Obtain a random sample of approximately 34 kg (75 lb) of herring from the set or load.

2. Place the plastic container on the scale and tare the scale.

3. Fill the container with 10 kg (22 lb) of herring.

4. Strip all roe from the females.

5. Record condition of all the roe on the sampling sheet:

   Condition 1 - acceptable by fishing companies for the Japanese market (bright yellow translucent eggs, few blood vessels) shown as **MATURE** in photograph appended to ROE SAMPLE KIT.

   Condition 2 - may be 2-3 days from acceptability (unclear and pinkish in colour, becoming translucent, too many blood vessels) shown as **IMMATURE 2** in photograph appended to ROE SAMPLE KIT.

   Condition 3 - may be 10 days from acceptability (very opaque with prominent blood vessels) shown as **IMMATURE 3** in photograph appended to ROE SAMPLE KIT.

6. Tare the scale and deposit all Mature 1 roe into the weighing container; record the weight. If the #1 roe weight is 870 g, the roe yield is 8.7%; if 950 g, the roe yield is 9.5%, etc.

7. Record the number of females with conditions 1, 2 and 3 maturity and record the number of males.

8. Repeat the above procedure with a second sample and average the results. If the results of the two samples are very different, a third test may be required.

   Also, record the number of spawned out and juvenile/immature herring.

   Important: Check the scale for accuracy periodically using a known weight.

Appendix Table 5. Formula used to adjust roe yields assuming a 50:50 male/female sex ratio.

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1. Determine the number of males and females in the roe test sample i.e. 42F, 56M.

2. Determine the % of females in the roe test sample i.e. 42.8% females.

3. Determine the % roe yield i.e. 9%.

   To convert the roe yield to a 50:50 male/female ratio, use the following formula:

$$\frac{\% \text{ roe} \times 50}{\% \text{ females}} \quad \text{i.e.} \quad \frac{9 \times 50}{42.8} = 10.51\%$$

In this example, the roe yield was actually 10.5% assuming a 50:50 male/female sex ratio for the herring stocks in the area.

This information is not to be passed to the Management Coordinator over the R.T. Make reference to the fact the sample is heavy on males or females, but do not adjust the roe yield.

This formula is for your own use only (for interest only).

Appendix Fig. 1a. New Wheelhouse and Sample Log - roe yield by volume.

July, 1984

NEW WHEEL HOUSE & SAMPLE LOG

(To be completed after every set, including water hauls and charter payment sets)

SET INFORMATION

1. Vessel Christian 2. Captain G. Stavdal
3. Stat. Area 2E 4. a) Location Sedgwick Bay (Quad. Chart)
   b) Water Depth 60 fm.
5. Date: Day 24 Month 03 Year 1986
6. Set No 31 7. Sample No 22 8. Time Set 2000
9. Sample: a) is ✓ b) is not _____ representative
10. Est. Tons in school set on 400 11. In catch 300
12. Est. Tons in Location 1000 13. Est. Tons in Stat Area 10 mi sq.
14. a) Wind Direction & Velocity 0 b) sky 0 %clear
    c) other _____ d) Sea Surface Temperature 7.1°C.
15. Herring School Behaviour 15 fm. and down
    just moving
16. Incidence of other species Dogfish
17. Summary of On Board Size Measurements:
    a) Cutoff length used 140
    b) Measured 100
    c) Fish less than cutoff length 0 %
    d) Average Size 2.2

Comments re: HERRING SIZE

DARKEN WATERPROOF

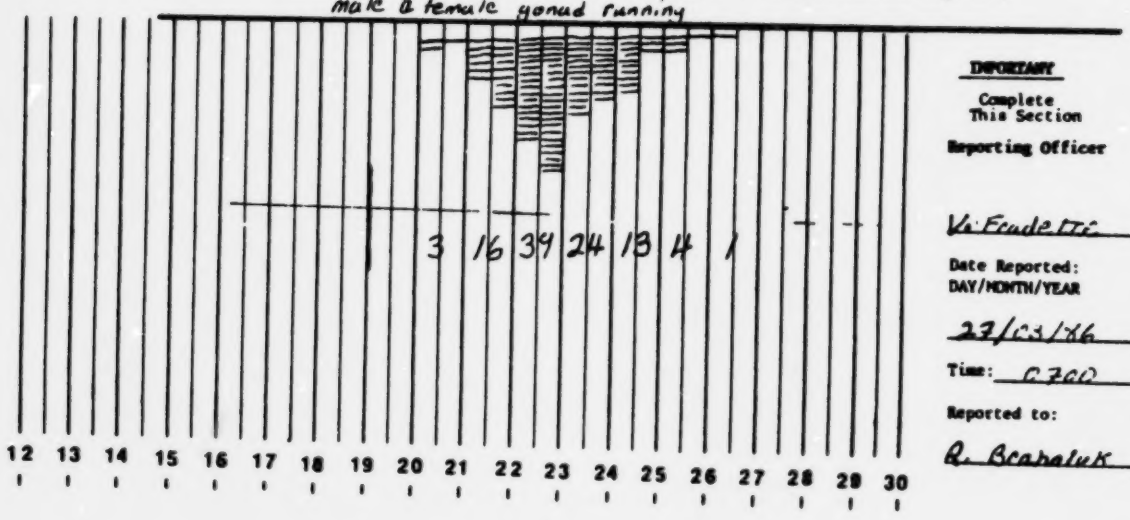
ROE TEST INFORMATION

	Test 1	Test 2	Test 3	Test 4	Test 5
No. Females cond. 1 Roe a)	42	37	44		
No. Females cond. 2 Roe b)	0	0	0		
No. Females cond. 3 Roe c)	5	1	1		
TOTAL FEMALES .....d)	47	38	45		
NO. OF MALES .....e)	38	47	45		
Spawned out .....f)					
Juvenile/Immature .....g)					
ROE YIELD (VOL) .....h)	13.0 %	10.0 %	13.0 %	%	%
Roe Yield (WT) .....i)	%	%	%	%	%
Total Sample Weight.....j)	gm	gm	gm	gm	gm
Total Roe Weight.....k)	gm	gm	gm	gm	gm

AVERAGE ROE YIELD

12.0

20. Comments re: Maturity (gonad running or firm) spawning, bird and Sea Lion activity, etc.
male & female gonad running



IMPORTANT

Complete This Section

Reporting Officer

Vi Feudetti

Date Reported: DAY/MONTH/YEAR

27/03/86

Time: 0700

Reported to:

R. Beardsley

Appendix Fig. 1b. New Wheelhouse and Sample Log - roe yield by weight.

July, 1984

NEW WHEEL HOUSE & SAMPLE LOG

(To be completed after every set, including water hauls and charter payment sets)

SET INFORMATION

1. Vessel Westview No. 2 2. Captain M. Alecksich
3. Stat. Area 17 4. a) Location Parker Pass.
   b) Water Depth 55 fm.
5. Date: Day 13 Month 03 Year 1986
6. Set No 41 7. Sample No 35 8. Time Set 0545
9. Sample: a) is ✓ b) is not _____ representative
10. Est. Tons in school set on 10 fm. Skimi 11. In catch 150
12. Est. Tons in Location Zone 5000 13. Est. Tons in Stat Area No. Est.
14. a) Wind Direction & Velocity light b) sky 10 Iclear
    c) other _____ d) Sea Surface Temperature 7.9°C
15. Herring School Behaviour Large school
    Light near surface - Medium deeper
16. Incidence of other species Nil
17. Summary of On Board Size Measurements:
    a) Cutoff length used 190
    b) Measured 100
    c) Fish less than cutoff length 41 %
    d) Average Size 19.3 cms.

Comments re: HERRING SIZE

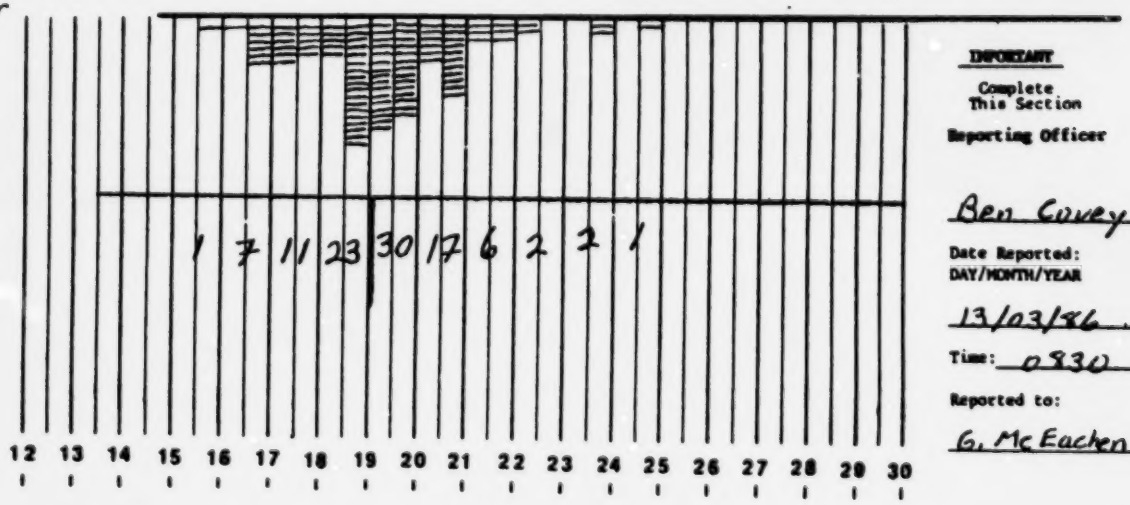
Small herring

ROE TEST INFORMATION

	Test 1	Test 2	Test 3	Test 4	Test 5
No. Females cond. 1 Roe a)	26	27	30		
No. Females cond. 2 Roe b)	7	3	7		
No. Females cond. 3 Roe c)	22	27	20		
TOTAL FEMALES .....d)	55	57	57		
NO. OF MALES .....e)	58	52	50		
Spawned out .....f)					
Juvenile/Immature .....g)	2	1			
ROE YIELD (VOL) .....h)	%	%	%	%	%
Roe Yield (WT) .....i)	5.55 %	5.52 %	5.83 %	%	%
Total Sample Weight.....j)	10K gm	10K gm	10K gm	gm	gm
Total Roe Weight.....k)	555 gm	552 gm	583 gm	gm	gm

AVERAGE ROE YIELD: 5.63

20. Comments re: Maturity (gonad running or firm) spawning, bird and Sea Lion activity, etc.



IMPORTANT

Complete This Section

Reporting Officer

Ben Covey

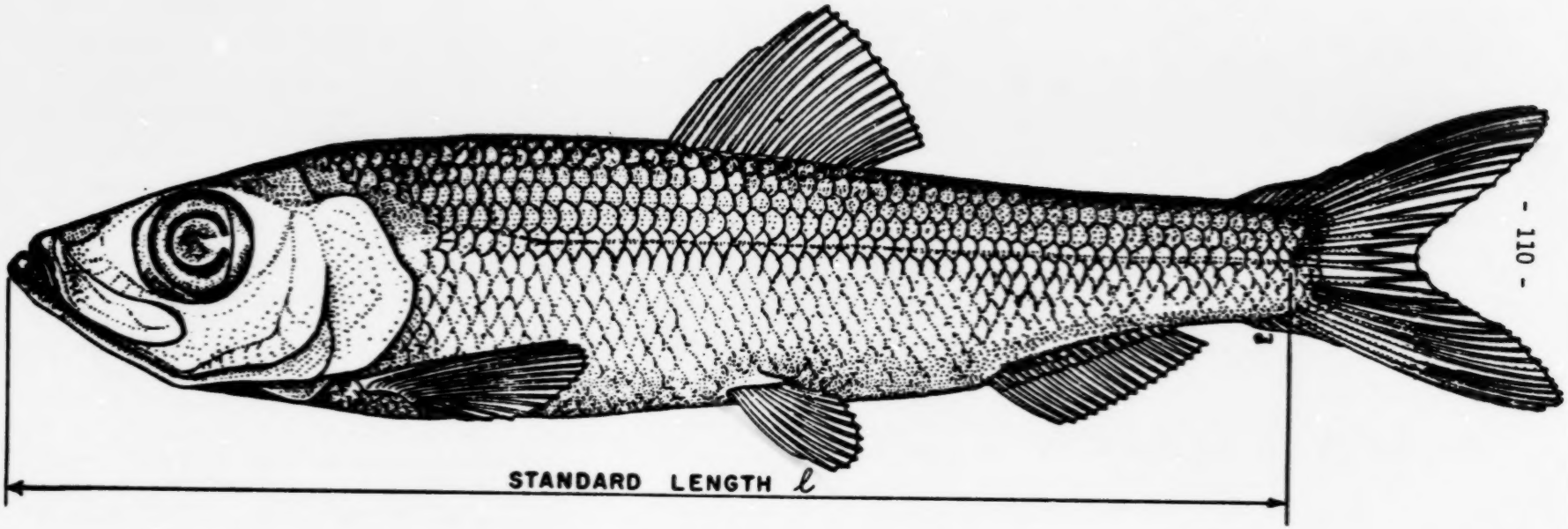
Date Reported: DAY/MONTH/YEAR

13/03/86

Time: 0930

Reported to:

G. McEachen



Appendix Fig. 2. The standard length measurement ℓ used for measuring herring. This length is defined as the distance from the anterior tip of the fish with the mouth closed, to the end of the silver skin on the caudal peduncle. It is important to scrape the scales off the peduncle area to find the end of the silvery portion of the skin.